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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

INVENTOR(S)					
Given Name (first and middle [if any])		Family Name or Surname		Residence (City and either State or Foreign Country)	
Frank		MacDonald		Orinda, California	
<input type="checkbox"/> Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (280 characters max)					
MODULAR BUILDING PANELS, METHOD OF ASSEMBLY OF BUILDING PANELS AND METHOD OF MAKING BUILDING PANELS					
Direct all correspondence to:			CORRESPONDENCE ADDRESS		
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ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification Number of Pages - 21					
<input type="checkbox"/> CD(s), Number					
<input checked="" type="checkbox"/> Drawing(s) Number of Sheets - 35					
<input checked="" type="checkbox"/> Other (specify) Disclosure of the Invention with pictures and additional drawings					
<input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)					
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.					
<input checked="" type="checkbox"/> A check or money order is enclosed to cover the filing fees					
<input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: 22-0261					
<input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.					
FILING FEE AMOUNT (\$)					
80.00					
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
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Respectfully submitted

SIGNATURE

Date

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(if appropriate)

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Docket Number:

36844-180451

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51, and is used by the public to file (and by the PTO to process) a provisional application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. SEND TO: Box Provisional Application, Assistant Commissioner for Patents, Washington, D.C. 20231.

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**Modular Building Panels, Method of Assembly of Building Panels and
Method of Making Building Panels**

Inventor: Frank MacDonald, Orinda California

This invention relates to modular building panels used for the construction of structures, a method of manufacturing panels, and a construction system using the panels disclosed herein. The building panels are ideally suitable for use in the construction of single-story conventional residential dwellings or utility buildings such as storage sheds.

BACKGROUND OF THE INVENTION

Frequently a goal of housing providers and potential housing purchasers is to reduce costs. Major elements that make up the costs of construction include both the materials used for the structure and labor involved in the construction process. In connection with the materials, conventional construction techniques typically use relatively expensive materials such as wood and steel. Further, the labor necessary in the construction process requires a relatively skilled labor force that adds to the expense. Further, it is generally recognized that if the time in which to construct the structure can be reduced, the labor costs may be commensurately be reduced.

While selecting less expensive materials can reduce the overall construction costs, the resulting structure may be of poor quality and the resulting structure often will not last. Such dwellings are also not attractive, and as a consequence are difficult to resell. While in some applications such as the provision of temporary housing, the durability and resale value is not a concern. However, when units are used for permanent housing the durability and ability to resell the house often influences the choices for materials.

Often a need or demand for housing can be manifested very quickly. For example, in circumstances after natural disasters, such as hurricanes, tornado, forest fires, earthquakes, mud slides and volcanic eruptions, large populations may be displaced and are rendered homeless. Political turmoil may also result in the movement of numerous refugees that require housing. Military forces also may manifest acute and rapid needs for housing on short notice, such as when there is a rapid need to deploy troops.

When a natural disaster, such as a tornado or hurricane, strikes a community, homes often are destroyed. In the past, house trailers have been transported to the natural disaster site to provide refuge for the people left homeless and to provide space for the relief workers. Because house trailers are relatively large, the transportation of the house trailers to the natural disaster site presents problems. Often the trailers are too large for roadways, too heavy for bridges and airlifting trailers is costly. Further, the costs of the trailers are typically high because it must be engineered to be transported. Pre-manufactured housing such as trailers or mobile homes may provide many advantages but the costs are often prohibitive.

Another conventional response to acute housing needs is to provide tents. Tents are relatively inexpensive, can be quickly erected, and are easy to transport. However, tents cannot be secured to the degrees of the building having rigid walls, are typically not well insulated and therefore often are not suitable for cold weather applications, and not have the advantage of glass windows. Tents are also not particularly durable and are therefor not suitable for long term housing solutions.

In response to these problems, there has been considerable development of prefabricated shelter structures. Prefabricated shelter structures that are disclosed in the

prior art often require special fasteners and hardware in order to produce a shelter with desired rigidity and ruggedness. Often, the use of the special hardware requires additional training and skilled workforce to assemble the structures on site. Some of the building structures and shelters that have been disclosed in the prior art have panels that are connected by fasteners, such as bolts, spikes, nails, rivets, or pins. Typical of such structures are the buildings shown in U.S. Pat. No. 1,924,414; U.S. Pat. No. 3,512,316; U.S. Pat. No. 3,566,554; U.S. Pat. No. 3,838,545; U.S. Pat. No. 3,992,829; 4,637,179; and U.S. Pat. No. 5,285,604. However, in view of the numerous attachment points between building panels, construction of these buildings is difficult and time-consuming to assemble and disassemble.

U.S. Pat. No. 4,726,155. (the '155 patent) discloses the use hinged panels connected to one another that avoids some of problems raised by the connection problems. The structure disclosed in the '155 patent can be rapidly assembled on site but the still requires significant assembly time at the production facility. U.S. Pat. No. 3,802,134. discloses the use of numerous latch members to interlock adjacent panels thereby simplifying the assembly process on site. Another approach disclosed in the prior art is the use of interlocking tongue-in-groove arrangements to connect adjacent panels.

In response to this problem, sometimes modular elements to construct a dwelling are separately shipped to the location. However, often the weight of the modular components is also a significant concern, especially when the transportation requires airlifting or over land truck routes. Further, some of the pre-engineered components have dimensions that make transportation and subsequent subassembly difficult.

Conventional stick frame housing cannot be quickly assembled and this conventional building technique generally requires significant skilled carpenter labor, as well as other tradesmen. The efforts to try to reduce and simplify the labor involved with conventional construction have been significant. For example, ceiling truss and floor joist are sometimes pre-manufactured and delivered to the job site that has served to reduce both material and labor costs. However, the remainder of the structure still requires significant on site cutting and assembly of raw lumber.

There is a continuing need for improved, inexpensive, durable, pre-manufactured materials that can be quickly assembled into structures. There continues to be a need to provide economical, building systems which can be rapidly constructed with a minimum of labor skills. Ideally units constructed should be able to be secured, have low maintenance requirements, and be energy efficient. The building system should also accommodate different designs and floor plans that can be catered to the particular application. Ideally, the system should include all of the required structural components including floors, walls, ceilings, trusses, and roof elements. Moreover, the system should be adaptable to accommodate locally available materials that are and abundant and make economic sense to substitute for the structural component based upon local conditions. Further, the materials and the building system should be able to be adapted to build different types of buildings. Such a system should be able to be assembled with minimal training or skills. More particularly, the system should be capable of eliminating the need to use a wide assortment of conventional materials that are expensive and their use involves considerable labor and skill, such as structural graded lumber, steel parts such as

I beams and joist hangers, seismic plywood panels, plastic non-biodegradable and adhesive products.

Accordingly it is an object of the present invention is to provide a modular construction system using panels that can be assembled into structure.

A further object of the invention is to provide a method of manufacturing panels that can be assembled into structures.

Additional objects of the invention are a turnkey a modular building factory wherein a plant that can manufacture the panels may be economically built and set up near the location where the housing is needed.

It is yet a further object of the invention to provide for a low maintenance, provide for the conservative use of natural resources, and provide flexibility in style and design. Another object is to provide a total integrated system of structural components that functions as a building system of floors, walls, ceilings, trusses, and roof members that can replace other materials conventionally used in wood frame or masonry buildings.

BRIEF DESCRIPTION OF THE INVENTION

The present invention is directed to a panel having a frame with a square groove around the periphery of the panel. The frame is made of galvanized steel or other material having similar properties. In the preferred embodiment the frame parts are attached to one another using an Adduxtor device. The panel is made of an outside planer sheet forming a first side and a second planar sheet forming a second side. The two sheets enclose a core region. In the manufacturing process, the first and second sheets are situated on a press on opposite sides of the square groove defined by the steel frame. Then polyurethane foam is injected into the center region, which expands and

pushes the panels out to the edges of the frame. The press limits movement of the panel. The polyurethane foam serves to hold the components together and is a good insulator.

The opposite planar sheets can be made of wood, plastic or fiberboard. In an alternative and preferred embodiment of the invention the exterior sheets are comprised of a concrete matrix reinforced with a mesh or screens, made of steel, fiberglass or fibers. The concrete is allowed to dry and then placed within a press and the remainder of the panel is constructed in the manner as described above.

The panels are constructed using rectangular shaped steel rod members that are commercially available and sold under the trade name or trademark UNISTRUT. According to a method of construction a rectangular member is attached to a floor and next a panel is so that the member is received in the square groove. Additional panels are installed adjacent to one another. When a span is complete a second member is installed in the groove located on the top of the panels. A tie rod is then inserted in the vertical spaces formed by adjacent panels. Upon completion of the tie rod step, the space may be filled with polyurethane or other conventional foam insulation.

It is possible to make panels of a variety of shapes including polygons that can be used to construct roof gables. Because the units can be manufactured and then quickly constructed on site, the invention is particularly suited for disaster relief or for providing housing in connection with military deployments. Other applications include medical aid stations, fishing huts, hunting blinds, and schools.

DETAILED DESCRIPTION OF THE INVENTION

The invention employs a steel frame that has a square profiled groove around the periphery of the panel. In a preferred embodiment sixteen-gage steel is bent on a suitable

mandrill to form square profiled channels. The rails are then mechanically clipped together wherein an overlap or tongue is bent to angles parallel with the channel. The overlapped parts are then clipped together. In a preferred embodiment the uses a an Attxor system. However other fastening techniques may be employed as well such as conventional rivets, welding or an appropriate adhesive. For examples clinching and stitchfolding are methods for joining sheet material without rivets screws or other added fasteners. Clinching and stitchfolding equipment is generally are driven by compressed air. The stitchfolding technique literally stitches material together, similar to stapling paper. However, in contrast to stapling, the stitchfolding method generates its own staples from the base material. Clinching generates a rivet-like joint from the sheets to be assembled through plastic cold flow in a punching and squeezing sequence.

Clinching works with pre-coated or galvanized material as well as with steel and aluminum combinations. The final assembled product does not require further finishing work. Furthermore clinching is advantageous because it does not build any thermal stresses into the assembled product thus resulting in clinched joint that has exceptionally good performance in situations of thermal fatigue or fire. Because the joint is created from the base metal itself without any additional parts or alien material, the technique has favorable corrosion properties and can easily be recycled. Systems for the of clinching and stichfolding are available from Attexor, Corp.and has locations in Massachusetts and Switzerland.

Upon completion of the assembly, the exterior side of the panel is then provided with an additional finishing substrate such as conventional siding or stucco. In preferred embodiment the exterior side is with a cement board that is poured in place on a press. In

a preferred embodiment of the invention a constant flow concrete composite mixer is employed to introduce to the process. The concrete is introduced to a vibratory table to even out the mixture. The mixture is then allowed to set.

One features of the invention is the nature that the corners are assembled so that gables may be assembled. The assembly technique first involves cutting the metal sheet and inner rail to a pre-selected pitch. As depicted in the accompanying Figures the steel plate is cut at a variety of preset angles so that panels used for gables may be easily constructed.

Next the frame is moved to the press where polyurethane foam is injected into a cavity defined by the exterior and the hardened concrete exterior floor. The polyurethane both insulates the but also structurally serves to bind the outer wall to the steel frame and inside panel. A sandwich panel, or composite structural member, is fabricated by bonding a core material to two adjacent skins or face sheets using a bonding agent. Thus, the structural integrity of a sandwich panel depends on factors that include the properties of the core material, the properties of the face sheet materials, the properties of the bonding agent, and on the methods used to join these materials. The dimensions of the panel and of the individual elements also impact the structural integrity. The problem of ensuring structural integrity is further compounded by the need to economically provide these materials at the job site in fabricated form.

PANEL ASSEMBLY

To assemble the panels into a structure, a suitable floor, slab or foundation is first provided. The wall panels may be assembled directly on a concrete slab or using other conventional floors set on foundations. Such foundations may comprise concrete block

by conventional floor truss arrangements covered by plywood. It is also that the panels themselves may be employed as flooring rested atop a suitable support system. Along the periphery of the foundation a "U-shaped" steel strut is attached to the floor or foundation. As shown in the accompanying Figs these U shaped steel struts generally have a "U-shaped" profile with a top lip section that can be engaged by a channel nut. The panels are aligned on a strut hat is attached to the floor. On the top a U shaped is inserted into the tip U shaped channel. Extended threaded rods are next inserted into the lateral space created by the opposite panels. A channel nut is and, as it is turned will lock into placed in the bottom channel or U shaped rod. A series of the panels, which are generally in 2' by 8' sections are aligned adjacent to one another.

Upon completion utilities such as electricity, telecommunications lines, water and sewage can be attached to the outside of the structure using protected cables or along the inside under the floor truss system, within interior walls of in the ceiling truss system.

The forgoing invention is effective at resolving many of the difficulties of fabricating an integrated modular structural including rapid manufacture, low cost, relatively light weight, being integrated from environmentally sound materials, and being flexibly combined with other modular components in to provide a modular building system.

Further, since the is pre-manufactured components the resulting structures can be manufactured with a consistent quality control with respect to the multiple components that make up the system. Likewise, governing agencies, responsible for issuing building codes, can therefore pre-approve entire structures and thereby reduce building the costs and complexity. Recognized approval ratings can be established and maintained for a

particular structures thereby reducing the need for inspecting the quality of installed structures.

One difficulty of building with panels is to insure the strength and structural integrity of each individual members or panels. A sandwich panel may be considered as a beam or structural member with regard to its structural integrity. A beam must be capable of supporting various loads or forces between two or more given points of a building or structure. For example, the wall panels must support the second floor or roof trusses. A beam fails when it is does not have the required structural integrity or strength to safely support a given load condition. The structural integrity of the sandwich panel will be dependant on the choice of materials for use in the member and on the quality control with respect to the methods used to fabricate the materials into a finished structural member.

From a structural integrity standpoint, the sandwich panels or structural members are considered as beams.. Further, the quality or integrity of the bond between the core and facing skin is a consideration as well as operational conditions which might adversely affect the behavior of certain grades of facings. In summary, a panel member has structural properties that vary greatly based on several factors. These factors include, but are not limited to: (1) the properties of the face sheet or skin materials; (2) the properties of the core material; (3) the properties of the bonding agent used to join the core to the skins; (4) the fabrication method or process used to effectuate the adhesive bond between the core and skins; and (5) ambient conditions during fabrication. The materials and methods in connection with the finishing also effect the following performance factors, (1) waterproofing; (2) fire resistance; (3) bug and vermin

resistance; (4) fungi-proofing; (5) seismic stressing; (6) sound absorption; (7) insulation against heat or cold; (8) design flexibility; and (9) durability or product life.

GLOBAL PACIFIC TECHNOLOGIES, LLC.

ReZist-It[®] BUILDING PRODUCTS / *Perma-Temp* STRUCTURES

The **OBJECTIVE** of Global Pacific Technologies, LLC, is to manufacture and supply pre-engineered wall, floor, and roof panels to the construction industry for the building of turnkey housing units and other structures for the global market. This will be accomplished through the sale of GloPac's "*high-output mini-factory*", containerized for shipping anywhere in the world. Global Pacific Technologies **PROFILE CUSTOMER** is any entity interested in providing affordable disaster resistant housing to those projects keyed to Global housing needs.

GloPac's mission: to provide affordable housing of the highest quality, in the most expedient manner, in both emerging and established nations, at the lowest possible cost.

This will be accomplished through the supply of containerized, "*high-output mini-factories*" that can be field-ready in a minimum amount of time, provide economical housing tailored to both the local environment and user, and generate a substantial profit for the manufacturer.

Products

The Company's core product is its mobile manufacturing facility, selling for \$350,000. The facility can be installed and ready to produce panels in less than two weeks. *ReZist-It* panels used for all types of construction can be manufactured from this facility. Two thousand five hundred square feet of covered area is needed for proper production. Daily panel production can range from 190 to 380, depending on hours worked. The complete production system includes.

- Injection equipment
- Temperature controlled storage and injection room components
- Two twelve tier panel presses
- An Attexor (ICBO) approved metal riveting machine
- A Palmer constant flow concrete composite mixer
- Various tools required for the operation of the manufacturing system

The typical structural panel consists of a polyurethane core enclosed by a commercial 16 gauge G-60 galvanized steel pre-formed metal frame, with an exterior coating consisting of GloPac's proprietary concrete composite formulation. The interior facing can be any material that matches the specific need. The structural panel is set into a post-tensioned assembly, is relatively light in weight, but offers exceptionally high load-bearing characteristics. The panel is quite versatile, and can be fabricated using different combinations of materials suitable for the specific building, environmental, and cultural requirements.

For each system purchased, GloPac will become the sole distribution source of the pre-formed metal framing and proprietary concrete. Other components may be supplied by GloPac, or may be purchased locally. Typical customers are expected to be construction companies (both commercial and residential contractors), real estate development companies, and successful businessmen or entrepreneurs seeking to participate in a profitable venture by capitalizing upon local demand for housing or commercial facilities. This list of customers includes not-for-profit agencies, Native American reservations and inner city builders.

Specific *ReZist-It* units will be made portable and reusable, when necessary, and will be known as Perma-Temp structures. These will be used for disaster relief. CSU's (compact sleeping units) and mini-shelters for the homeless, medical aid stations, fire fighting rest stations, fishing huts and hunting blinds will also be marketed and sold.

Markets

The \$619 billion construction industry in the U.S. is growing at an annual rate of 4%. California, along with many other states, is experiencing an acute shortage of "affordable" housing. In a recent report by the California Budget Project, *"Locked Out: - California's Affordable Housing Crisis"* stating 1999 statistics, California is cited as having only 37% of its households able to afford a median priced home, compared to 55% nationally. In addition, the Native American community is clamoring for affordable housing and methods to increase employment. GloPac's panel manufacturing facilities will satisfy both requirements. And, this same "dual role" model will be used for inner city development.

Internationally, there exists an acute need for both residential housing and commercial structures. Many countries lack the necessary ingredients needed to improve the housing situation, (i.e., materials, skilled labor, and technical know-how). Countries experiencing serious housing shortages are looking for affordable, easily managed solutions.

MARKETS

Industry Overview

US Market

In general, market share and business potential in the manufactured housing industry looks excellent. Growth and popularity of manufactured homes is increasing according to Automated Builder magazine. GloPac will acquire significant market share, as their *ReZist-It* system delivers a superior product in regard to quality construction, lower utility costs with lower construction costs, and can be aesthetically similar to any conventionally built structure. To further the market potential for GloPac's products, a recent press release announced that U.S. homebuilders are interested in non-wood alternatives. Leaders in the residential construction market, such as Centex Homes and Kaufman & Broad, have already taken steps to eliminate the use of wood from endangered forests. According to the President of Centex Homes, Andrew Hannigan, Centex has assembled a task force to identify non-wood alternatives.

The Global Market

In a 1996 assessment of conditions in the world's cities, "Global Report on Human Settlements: An Urbanizing World," the United Nations reported that over 500 million people are either homeless or living in unfit, life-threatening housing. The prognosis for the next 30 years is dire, as the population of urban areas is expected to double from 2.4 billion to 5 billion by 2015. In many countries, many of the necessary ingredients needed to improve the housing situation, i.e., materials, skilled labor, and technical knowledge are lacking.

Many countries experiencing serious housing shortages are looking for affordable solutions to accommodate the highest proportion of their population. Many of these governments as well as several international agencies have established a variety of housing development programs that facilitate new construction and affordable access; especially construction technologies that do not use lumber.

User Benefit from GloPac's System

GloPac's structural insulated panel (SIP) individually framed, is a high quality product that is extremely competitive when matched up against typical stick frame construction methods, and more versatile and competitive than the standard SIP. The high insulation value plus the structural integrity of the *ReZist-It* panel offer advantages over conventional metal and stick-framed construction. Since there is no need for separate framing, additional insulation materials, or the placement of wallboard, labor costs are substantially reduced. The panels, when assembled, meet very stringent seismic and wind-load requirements. GloPac's proprietary post-tensioned locking system is a systematic and standardized erection process that significantly reduces construction time and cuts labor costs for the contractor/developer.

The home or commercial structure buyer will enjoy the enhanced energy and structural efficiencies and can be assured that all *ReZist-It* structures are impervious to rot, moisture, rodents, and termites. Furthermore, the GloPac panels have a superior burn rate (i.e., much higher fire-resistance) as compared to conventionally constructed alternatives. GloPac's *ReZist-It* system will resist the effects of all natural disasters such as earthquakes, fires, hurricane/typhoon winds and floods.

The ever-increasing cost of materials and labor has caused construction prices to skyrocket and has priced many potential consumers out of the marketplace. A distinct advantage of the *ReZist-It* Manufacturing System is the ability to locate a plant adjacent to the housing development project, thereby allowing for the production of large numbers of building panels and rapid erection of buildings. Transportation costs for materials are significantly reduced, and the number of man-hours (and amount of skilled labor) required to build a home is minimized. Overall construction costs of the *ReZist-It* building system are less costly than a conventionally framed structure. A reduction in the time required to erect a home relates to

This is the assessment and interpretation of Global Pacific Technologies, LLC
No further representations are being made.

(14)

Global Pacific Technologies, LLCStrategic Business Plan

lower borrowing costs for the developer, with shorter move-in times for residents. Assuming average production capabilities, the payback period for a buyer of GloPac's containerized high-output mini-factory" is very short. This is due to the ability to rapidly install production equipment and begin operations by employing and training in-country personnel. These facts, coupled with the use of GloPac's established resources, reduced construction costs and faster erection times, translate into viable and quantifiable benefits to GloPac's customers.

Completed structures built with *ReZist-It* panels yield tremendous benefits that create immediate return. The cost to produce and erect a *ReZist-It* home is significantly less than a stick-framed home. Recent reports on lumber prices and comparisons confirm this benefit. The *National Association of Home Builders* has compared costs for a 2,000 square foot home built with lumber to the same home built with structural panels. Lumber costs per house were approximately \$4,882 versus \$1,394 with structural insulated panels. The costs of lumber and wood products account for one-third of the costs of materials used to build a home. By using structural panels, the direct savings, and therefore benefits, are received by not only the homebuilder but by the homebuyer as well. The *ReZist-It* built structure will save as much as 30% of the final home building cost, whether conventional or panelized construction. A most important fact to consider is that the *ReZist-It* structure assembles completed walls with only final finishes to be applied.

Sales Strategy to Reach Objectives

Executive selling will be the main avenue for consummating transactions. This will assist the company in expanding its exposure through alliances, joint ventures, and relationships with other businesses in the construction industry.

GloPac plans to:

- A. Establish manufacturing representatives for their manufacturing systems and panel products: GloPac will increase its sales force by contracting with third parties that have direct relationships within the housing and construction industries for specific domestic markets as well as markets in emerging and established nations.
- B. Establish business partnerships with material manufacturers: Each 600 square foot home requires 1,500 feet of hat channel, 5,112 pounds of Tectonite composite for exterior / interior walls and a minimum of 312.4 pounds of foam. Considering that a fully functioning, containerized manufacturing facility can produce panels sufficient to build over 118 homes in a single month per 10 hour shift, a potential demand exists for 8,378 sheets of cladding per month, per factory, per 10-hour shift. We intend to add sustainable value to our licenses by also providing ancillary building supplies through relationships with material suppliers. Production of panels for 118 homes requires 36,863.2 pounds of polyurethane per month.
 These demands provide an opportunity for a polyurethane manufacturer to both market and encourage the use of the *ReZist-It* manufacturing facilities. GloPac can benefit from alliances with existing polyurethane businesses, and the polyurethane manufacturer can benefit from promoting the *ReZist-It* system to developers and builders. GloPac intends to use BASF *frothing foam* but will always implement a contingency plan to use what is locally available. Project blending of the foam is possible and cost effective.
- C. Educate and align contractors: Given the applicability of the *ReZist-It* structural panel product, GloPac will educate contractors and architects on the use of the panel in various construction projects. Concentration on residential single-family construction and commercial framing contractors will provide a base to which the *ReZist-It* product can be distributed.
- D. Direct sale of mobile manufacturing facilities: A significant portion of the time of both the President/CEO and Vice President of Sales and Marketing will be focused on the direct sale of mobile manufacturing facilities. At the present time key relationships with the national Native American organizations in both Canada and the United States look very promising as a source of multiple facility sales. In addition, discussions are ongoing with entrepreneurs and developers in several emerging nations who are interested in purchasing manufacturing facilities.

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 No further representations are being made.

(15)

Competition

Manufacturing Systems

Investigations confirm that distribution and transfer of structural panel manufacturing technology is largely an untapped market. All firms offering similar on-site manufacturing systems were found to be significantly higher in capitalization and start-up costs than GloPac. The average asking price for a manufacturing system with equivalent production capacity to GloPac is approximately \$2.5 million. Only a small number of these types of firms are actually involved in construction projects utilizing their own equipment. Of the firms identified, a large number offer their manufacturing systems as secondary or complementary products to their primary competencies, which may be polyurethane injection system manufacturing, or block polystyrene production.

The market for structural panel manufacturing systems is in its infancy with few companies meeting the growing demand and increasing product acceptance. Developing nations, which would benefit the most from such a product, lack the technology even more so than the US market. Only a handful of the firms identified actually have an international presence or intend to capture a portion of this market.

Conventional Housing

As housing costs continue to rise, lower priced affordable housing is no longer being constructed in the same quantities as in previous years. According to the U.S. Department of Housing and Urban Development, U.S. Department of Commerce, The Economics and Statistics Administration and the Bureau of the Census, the percentage of contractor built homes with a per square foot price less than \$50.00 has steadily declined. Similarly during this same period, the percentage of contractor built homes in the over \$50.00 range has steadily increased.

Currently California is experiencing an acute shortage of affordable housing. In a Year 2000 report by the California Budget Project, "Locked Out: California's Affordable Housing Crisis" California is stated as having only 37 percent of the California households capable of affording a median priced home in 1999, compared to 55 percent nationally. In addition the report states that fewer than one out of twenty new homes sold in 1999 were affordable to households with incomes at or below the median for California renter households. In 2001 the problem has become even more critical.

Manufactured Housing

In 1997, total manufactured housing shipments generated \$8.3 billion in revenue. While the dollar volume has increased, the manufactured housing industry today has shrunk to 100 companies with approximately 250 production facilities. In 1994, the five largest manufacturers produced 43% of all units. In 1997 the top 10 manufacturers accounted for 75% of the homes shipped, up from 71% in 1996. Competition will inevitably increase as a result of the Partnership for Advancing Technology in Housing (PATH) initiative endorsed by President Clinton and the US Department of Housing and Urban Development. This program is a public-private partnership whose mission "is to accelerate the creation and widespread use of advanced technologies in order to radically improve the quality, durability, environmental efficiency, and affordability of tomorrow's homes," according to a May 1998 press release from the Structural Insulated Panel Association. Estimates of the quantity of single-family homes built using manufactured housing techniques range from 295,000 units per year to 360,000 units per year. The GSD, Harvard further estimates the total new home construction market per year is averaging 1.1 to 1.2 million households.

Modular Schools

Modular school construction has experienced tremendous growth over the past 15 years, in both California and Florida. Over \$4.3 billion dollars has been allocated for school construction. Recent legislation to improve teacher-student ratios in California and restrictions on renewing leases on current modular school buildings in Florida has spawned several alternative technologies to meet that demand. Various types of construction methods are currently employed to provide modular school buildings. These range from concrete tilt-up to shabby lumber-constructed buildings that are temporarily set on site. In some cases, the poor construction methods used in these structures has diminished the overall quality. This is the assessment and interpretation of Global Pacific Technologies, LLC. No further representations are being made.

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of the schools that our children study in throughout the year. GloPac's *ReZist-It* structural insulated panel is ideal for this market. It is superior to existing products that currently engage in modular school construction and will withstand the stress that modular schools are subjected to over the years.

There are at least 15 different firms serving the modular school market, with a cumulative average of \$45 million in annual sales. Only 20% of these firms provide school solutions in California. The majority of the firms use either concrete fabrication or lumber. Standardized plans and layouts are limitations inherent in manufactured housing or modular school construction. Most firms that serve this market offer limited products for all districts.

The advantage that GloPac will leverage is the flexibility inherent in the structural panel, which will provide multiple solutions that can be produced for specific districts. GloPac's school buildings, built to approved specifications, will be more than 40% less in cost. The real problem is not cost or system quality but politics. This must be overcome before any share of this market can be obtained. Charter schools are the most viable school market, and GloPac has made initial inroads to capture a share of this most profitable market.

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THE PRODUCTS

Theory of Operation

The Company's manufacturing system consists of structural panel presses that are multi-functional, easily transportable, inexpensive to produce, and can be operated by unskilled labor. The *ReZist-It* manufactured structural panel consists of a polyurethane core, and outer skins of choice. The cladding material can be any of a variety of products such as metal, gypsum board, or cement fiberboard. GloPac recommends "*Tectonite*," GloPac's proprietary concrete composite for the exterior skin. The buyer can choose from a multitude of materials for interior skins. During production, the Polyurethane is injected between the skins under pressure, completely bonding to the materials and forming a homogeneous closed-cell structure with excellent insulation properties and durability. After a short settling period, the panel is removed from the press, labeled, checked for integrity and quality and then palletized for immediate shipment.

The structural panel is versatile, allowing different combinations of materials to be utilized to yield optimum insulation and structural properties. Polyurethane is self-bonding, producing a structural panel with an extremely high shear value, which will not delaminate under stress and will bond to virtually any cladding material. Polyurethane, the only product capable of being injected, results in a denser, more homogenous material, giving a 100% structural consistency. Internal stress occurring in the panel structure due to expansion and contraction movements is offset by the flexibility of the Polyurethane, and is virtually eliminated through the use of GloPac's proprietary metal frame assembly.

The complete bonding achieved by polyurethane injected panels, together with high insulation values, eliminates corrosion. There is a minimum of 94% closed-cell foam, promoting excellent insulation properties. The polyurethane foam used by GloPac is an approved material, conforming to Production Manual Standards and holds a "Class 1 fire rating".

Manufacturing Operations

The complete product includes two 12 tier 5' x 12' panel presses designed and built by GloPac, injection equipment components for temperature controlled facilities, an Attexor machine, a jig table, 3 roller tables and various tools for the operation of the manufacturing system. This transportable manufacturing facility can be shipped in one 40-foot container. Once the container is received, the manufacturing facility can be operational within two weeks. Production capacities are 24 panels per hour, per press, depending upon labor and raw material availability. The number of panel presses is dependent on the construction contemplated, timeline requirements and the size of the labor force being used to accomplish the construction. The Polyurethane injection device can be operated by generator or in a fixed site from a normal electrical source.

Optimum factory size (layout space) is 2,500 square feet, which allows for safe production and storage of some raw materials and finished panels. Each manufacturing system purchased will come with an annual maintenance and warranty agreement, which will allow the buyer to have continuous access to ongoing research and development. Completed structures using *ReZist-It* panels are impervious to mildew, rodent infestation and termites. Our post-tensioned assembly process enables quick and easy erection in less than half the time of conventional construction methods.

The assembly is similar to the very familiar toy known as the Erector Set. Standardization of the panel production process ensures consistent high quality products with superior vertical and horizontal strengths. Panels are produced in standard dimensions as well as to desired specifications. Commercial gauge metal surrounds the perimeter of each panel making the product virtually fire proof.

When assembled, a structure built from *ReZist-It* panels will withstand extreme weather conditions including 155MPH hurricane winds and "Seismic Zone IV" earthquake activity. Because of the strength of the panel itself, truss spacing can be maximized, thus saving additional material costs for a finished

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home or commercial building. Many applications do not require roof trusses, due to effective use of panels.

Roof System

The roof system utilized by GloPac is an adaptation of the Quick Build roof panel system. Arrangements have been made to incorporate this system into the *ReZist-It* system. The roofing panel, ridge beam and roof connections have been specifically designed to connect directly to the standard *ReZist-It* panel and bracket system, ensuring structural integrity and an imperviousness to weather.

Floor System

The floor system utilized by GloPac is an adaptation of the Quick Build floor panel system. As with the roof system, arrangements have been made to incorporate this system into the *ReZist-It* system. The floor panels, supports and connections have been specifically designed to connect directly to the standard *ReZist-It* panel and bracket system, ensuring structural integrity and an imperviousness to weather.

Product Applications

The *ReZist-It* technology can be applied across a wide range of applications. GloPac plans to direct its attention to housing that is most visibly needed, as listed below:

- World Housing: Cultural adaptable living structures as comfortable low-cost homes.
- Urban Development: To house urban population. Attractive but low-cost.
- In-fill Housing: Cities need to complete neighborhoods. Empty unattended lots, at times, become an unsightly mess attractive to homeless squatters
- Affordable Housing [HUD, FHA, and Veterans Administration]: Housing quality must be built for lower cost.
- Disaster Relief Housing: This is a need for which we never plan. The low-cost, high-speed assembly, and weather protection properties are ideal for relief workers, warehouses and replacement housing.
- Migrant Worker Housing: Workers must be housed at low-cost.
- Shelters and Kiosks: This includes housing for the homeless, sleeping units for fire fighters and medical aid stations, etc.
- Panels Specific to Proposed Project: Sound Walls, fire walls, bulletproof walls, etc.
- Commercial, Industrial Project Components: As requested.

Manufacturing and Product Economic Advantages

GloPac building materials are less expensive and more stable in pricing than standard building products. Labor savings associated with structural panel production versus stick framing are significant. The above two items make the manufacturing system a viable cost saving alternative and a highly profitable proposition for a builder/developer. Similar manufacturing facilities require significant capitalization. Most similar facilities require a fixed site from which to operate.

Key Advantages of GloPac Manufacturing:

- Ease of Operation: The presses are designed with simplicity in mind. They are manually operated, and the polyurethane injection equipment is timed and self-cleaning.
- Ease of Maintenance: The presses are built with readily available products and require little maintenance to maintain maximum production capacity.
- Portability: The entire "high-output mini-factory" and all its supporting components can be loaded into one or two 40 foot containers, depending on desired panel output, for direct shipment to a specific job-site.

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- **Low life-cycle cost:** The initial cost of the complete manufacturing facility, training and ongoing consultant support is inexpensive when compared with other home manufacturing systems, thus yielding a very short payback period.
- **Superior Shear Strength:** GloPac's wall panel offers superior structural strength compared to other building alternatives. Previous structural tests performed on *ReZist-It* structural wall panel surpassed all sandwich wall panel criteria.
- **Minimizes Exposure:** GloPac's *ReZist-It* wall panel design shows a course of due diligence to minimize contractor's and developer's exposure to construction defect litigation.

Product Cost Analysis

GloPac's "high-output mini-factory" can offer significant sales margins as a result of its low-cost production system. Standardization of materials and solid relationships with suppliers contribute to its overall profitability.

The cost per unit and expected profitability for a *ReZist-It* home confirms that the company can positively influence the residential housing industry. More importantly it verifies GloPac's ability to compete in residential housing.

Present Product Status: Over the past 6 months the manufacturing system has been revised to support high levels of production of consistently high quality panels. The standardization of equipment and procedures, coupled with improvements made in the overall manufacturing process have resulted in a mobile facility that will consistently produce high quality panels for all applications previously mentioned.

Patents and Proprietary Position: GloPac's products are patent pending, patented, or of a proprietary nature. One such proprietary value is the method of erection. GloPac does not use ordinary framing systems such as lumber, but uses the structural panels themselves as the interior and exterior frame. The entire building structure can be assembled using only a torque wrench and a screwdriver.

Please Note: We know of no other system making such a claim.

SELLING**Current Selling Method(s)**

Direct sales by GloPac executives, as well as appointed third party representatives are the intended methods of introducing GloPac products. Contracted third-party representatives will be located throughout the global community and act under GloPac's supervision and guidance. GloPac will provide the representatives with all promotional and marketing materials. GloPac's President and Vice President of Sales and Marketing will provide all representative training and work with each representative during initial presentations to key prospects. All contract negotiations and final product prices will be totally defined by GloPac management.

Selling Method(s) Long Term

Direct personal selling and trade selling are GloPac's best opportunity to produce immediate awareness and knowledge of their products. Direct selling will continue to be an avenue for moving GloPac products to the market. Trade selling is a viable distribution channel and will be accomplished via Value Added Reseller (VAR) relationships through real estate developers and building material distributors. An exhibit for future trade shows (actual *ReZist-It* home) will be available prior to the end of 2001.

Strategic Competitive Advantage

A major competitive advantage that GloPac holds over all competition is its very reasonably priced mobile manufacturing facility, which can easily be funded by major financial organizations such as, the International Monetary Fund, Ex-Im Bank, the World Bank or OPIC. GloPac will assist the customer, when asked, in understanding the procedures necessary for obtaining funding from these agencies.

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MANUFACTURING

Outsource Considerations

Manufacturing Systems

Pre-formed steel hat-channel will be outsourced from the North Star Company in Los Angeles, under contract. GloPac's outsource contract will insure consistent quality and reliable availability of our metal hat-channel, at a lower cost than what we could provide in-house. Additional material outsourced for the manufacturing system will include the polyurethane injection machinery and *urethane frothing foam*. Should import duties be excessive with regard to the foam, or should there be a problem in locating the pressurized containers, GloPac will set the manufacturer up with a blending unit for mixing his own foam. This would be an additional cost of approximately \$50,000 US dollars. All other tools and accessories necessary for manufacturing the *ReZist-It* panels are inventoried and packaged with the complete system. These accessories can include an air compressor, heating devices, saws, drills, etc. The panel presses are designed and manufactured exclusively for GloPac.

Each individual manufacturer can increase panel production by hiring additional labor, and adding panel presses. GloPac personnel will supervise factory set-up and will train manufacturing and assembly crews.

Major Purchasing Issues

Raw material purchasing is and will continue to be a major direct cost of panel fabrication. Cladding material or skins, polyurethane, and medium gauge G-60 galvanized metal are the major components of the panel product and must be purchased in volume to receive appropriate discounts. Relationships have been solidified with several suppliers. GloPac has identified secondary sources for every major component of the manufacturing process as well as all raw materials used for panel production. The polyurethane injection system is a major purchasing issue, and will require sourcing for the specific site location. There are several types of polyurethane foam foaming equipment. The correct match will be made at each mobile manufacturing facility, depending on its location and local material availability.

Quality Control Processes

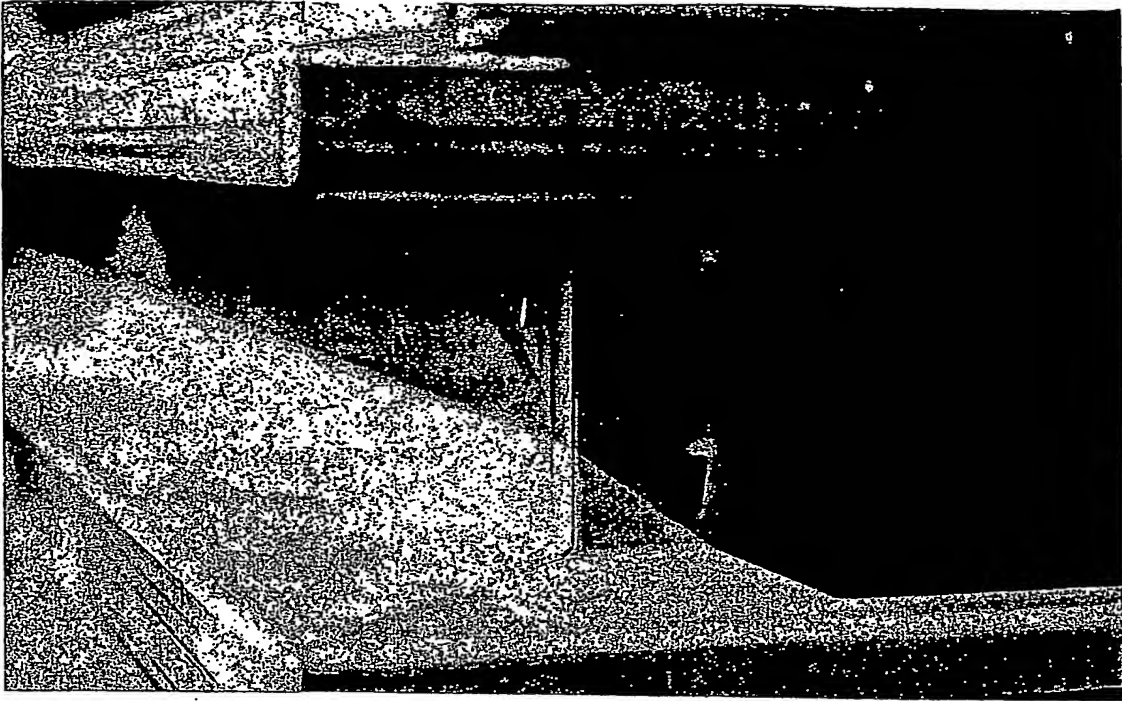
Panel Production

Every structural panel is checked for density, straightness of all edges, and structural integrity prior to release into finished goods inventory. Every panel is stamped with the date of production, the *ReZist-It* emblem and trademark, and applicable raw material lots that were used during production. Quality control documentation consists of panel production logs, calibration logs, press maintenance logs, and panel integrity verification and sign-off documents. Every day, prior to the start of production, the injection system is calibrated, and all of its components are verified for proper functionality. Heating temperatures are verified throughout the day at regular intervals. Polyurethane foam density is checked on a regular basis to ensure consistent mix ratios.

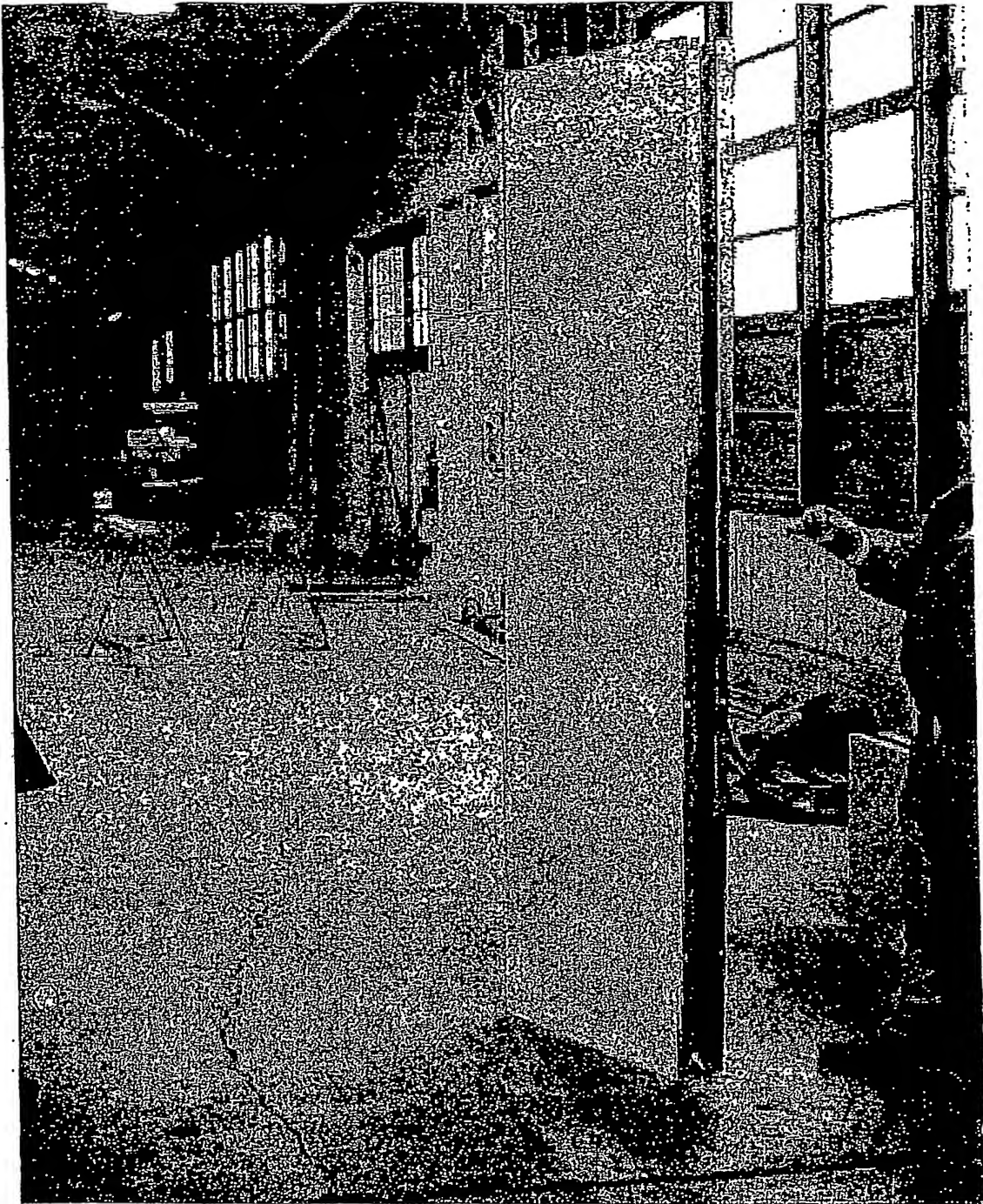
Research and New Products

Improvements to the *ReZist-It* system are essential to maintain a proprietary advantage over competitors. Consistently active innovation will keep us at the forefront of our industry. GloPac has a number of development programs planned to improve panel quality and extend *ReZist-It* technology into new market areas. These new areas include curtain walls in high-rise construction, firewall panels and bulletproof panels.

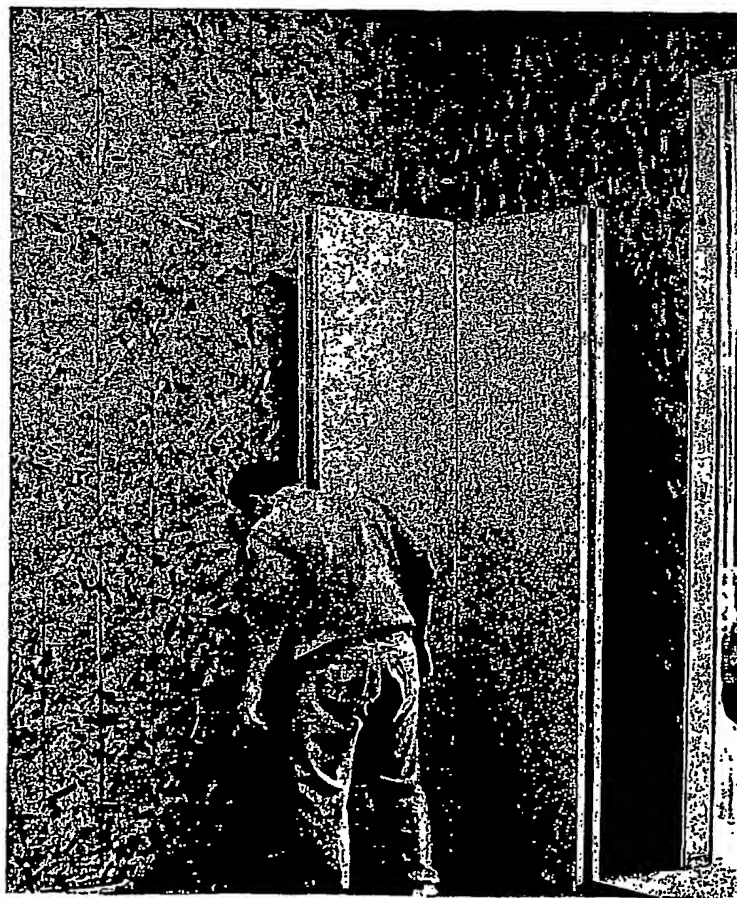
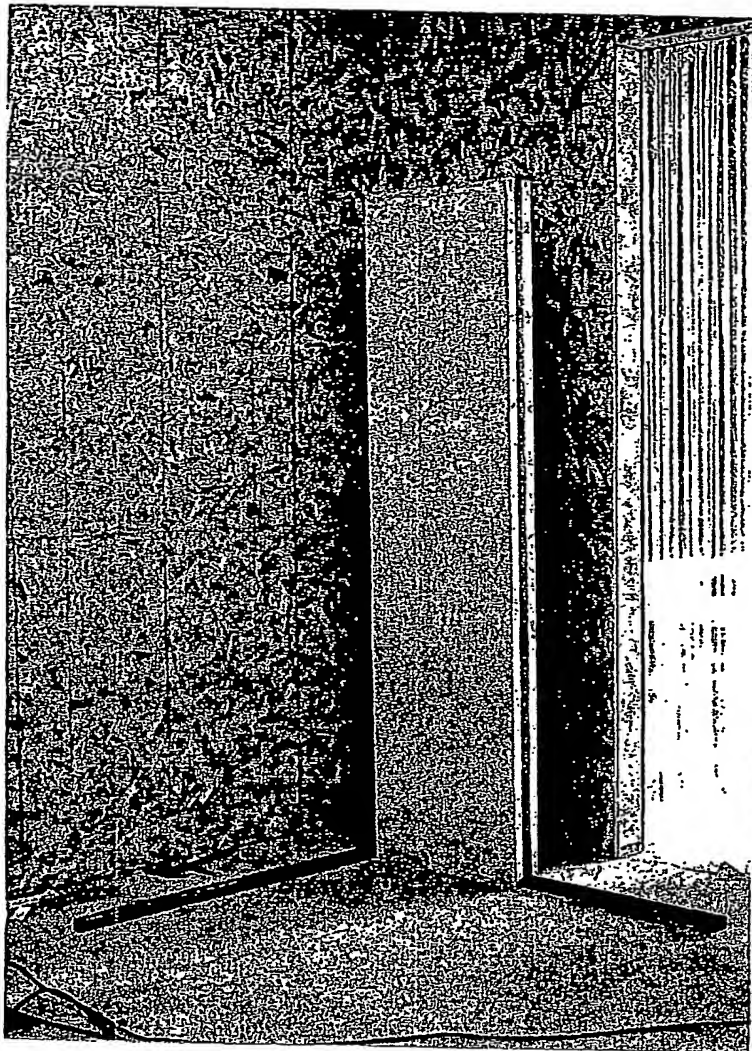
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1. A *ReZist-It* panel showing the metal frame and urethane foam which was injected in GloPac's press between two clear plastic sheets. Weight 45 pounds, size 2' x 8', insulation value R-28+, rated as structural panel. At the present time we are limited to panels no larger than 4' x 8', due to the size of our press.



The following specifications and price quotations for residential structures using *ReZist-It* technology are estimates only. They are not based on actual working drawings; therefore, they are subject to variance. Prices are subject to change, depending on a site inspection, material availability, local labor rates, logistics and applicable country, state or province licence charges and fees. The effectiveness of local labor is also a critical determinant to accurate costing.

1. **SITE WORK**

A site review will be required to determine the type and magnitude of work to be performed. A clear and level pad is preferred. Provisions can be made for other than preferred conditions.

2. **FOUNDATIONS**

The foundation may be at ground level as a "slab on grade" or maybe raised off the ground by the use of "pier and beam" construction. Footing, foundation and rough flooring prices are not included in quotations.

3. **FRAMING**

All framing has been eliminated through the use of the *ReZist-It* Panelized Building System.

4. **WALLS**

Wall dimensions and thickness will be as specified in "Plans and Specifications". Electrical chase placement will be as specified. Special plumbing walls will be as specified. A *ReZist-It* wall is monolithic and is comprised of a series of *ReZist-It* panels bolted together using *ReZist-It* connection technology. Each *ReZist-It* panel is a sandwich panel of urethane, fireproof, environmentally approved foam with two concrete face sheets encased in a commercial grade, 16 gauge, G-60 galvanized steel frame. The *ReZist-It* wall panels provide high insulation values and are resistant to high wind loads, earthquake stresses and fire. Exterior wall panels are typically 2 feet by 8 feet by 4 ½ inches or 4 feet by 8 feet by 4 ½ inches. Interior wall panels are typically 2 feet by 8 feet by 2 ¾ inches to assure maximum space usage. All walls are structural. Engineering data is stamped and approved by a registered engineer and is submitted with final working drawings.

5. **ROOF**

A modified "Quickbuild" system will be specified and used. The roof system will be wind-load approved and will provide R-30+ insulation value. Engineering data will be stamped and approved by a registered engineer and submitted with final working drawings. The roof sheathing will be galvanized and paint coated steel with urethane insulation. All connections to the *ReZist-It* wall will be 12 gauge steel with locking bolts into the *ReZist-It* U-channel. Point load stresses will be directed through the locking and post-tensioned system to the ground.

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6. INTERIORS

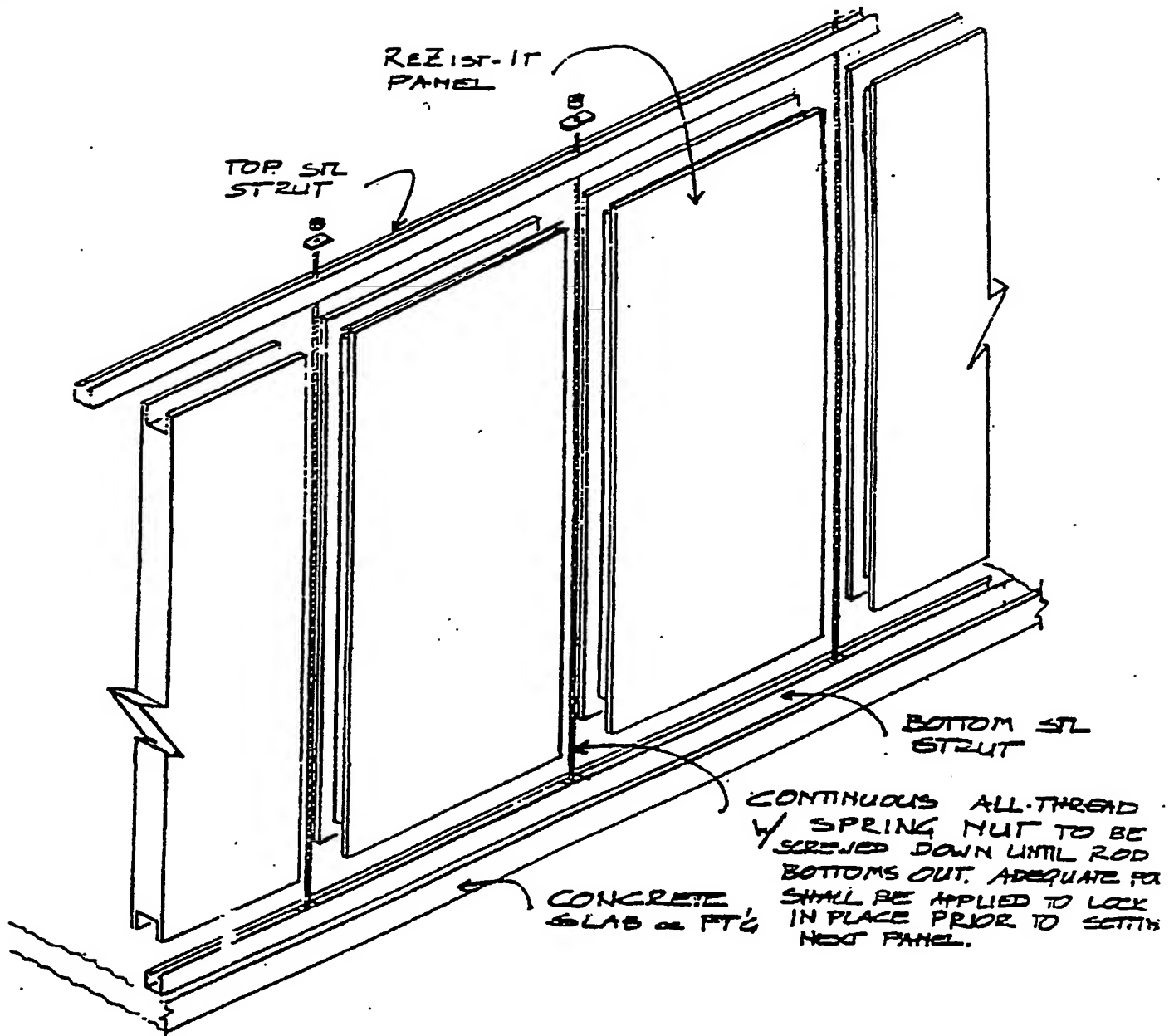
No dry-wall is required on exterior or interior walls. The ceiling may require dry wall but will be as per "plans and specifications". *Tasso Glass*, fiberglass wall covering will be typical unless otherwise noted. Floor covering will be as per "Plans and Specs".

7. SPECIALTIES

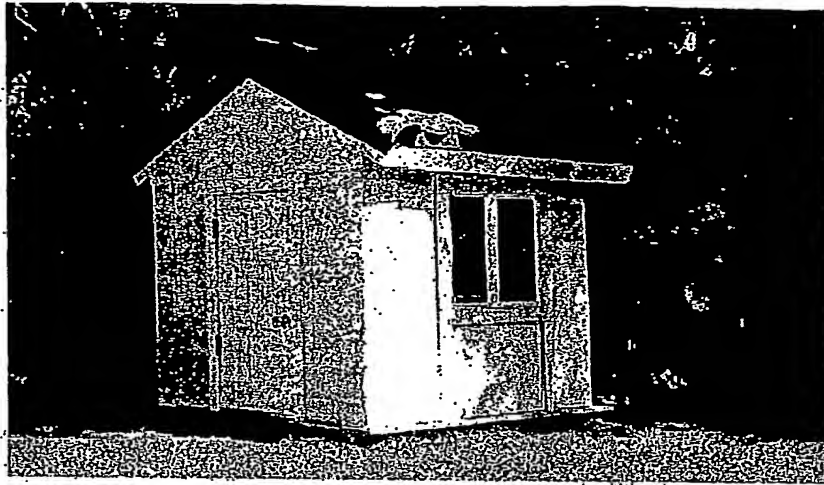
Kitchen counter and sink provided tub/shower as specified wash basin with fixtures will be provided, water closet is provided per bath.

8. ELECTRICAL

One wall plug in each room is standard. See plans and specs for any variance.

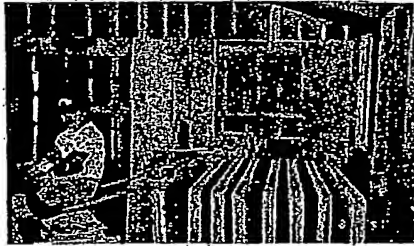
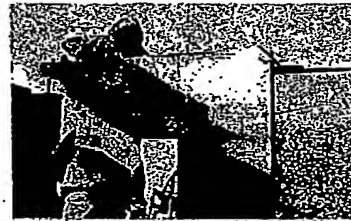
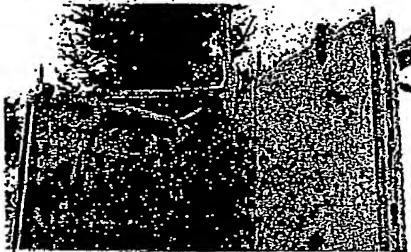
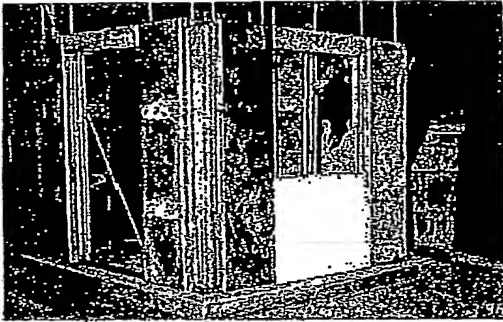


A typical wall section consisting of four 2' x 8' panels. A double metal stud at 2 foot centers with a metal rod connecting roof to slab enclosed in a concrete column.

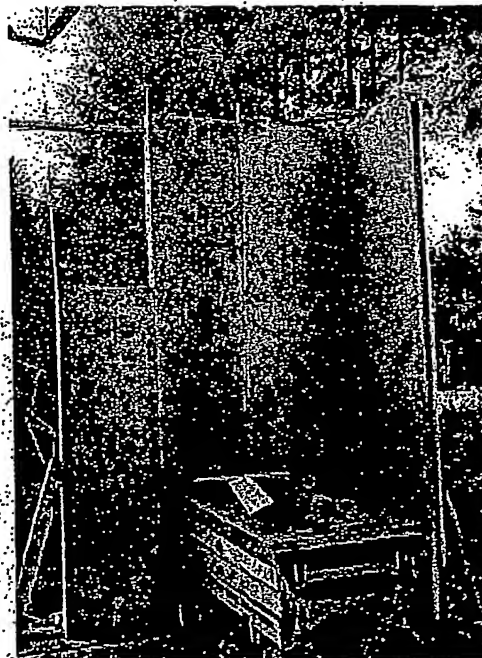
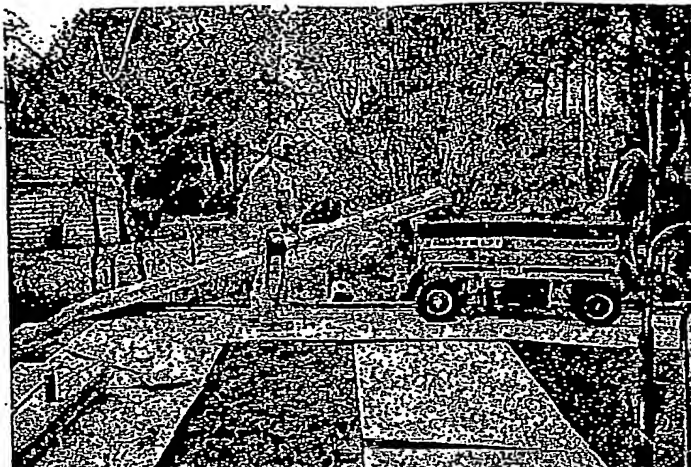


2. The upper picture shows a small 1/2-scale playhouse from flooring base to completion, including windows (2) and door. This took 9-1/2 minutes to setup and lock down.
3. This lower picture is an 800 square foot home built in a warehouse. It took four people less than one day to set all exterior and interior walls. Roof trusses and complete roofing took one day to install. Ceramic tile on the floors. All finishing including complete kitchen with Corian counters and cabinets were then installed. A one bedroom, one bath home.

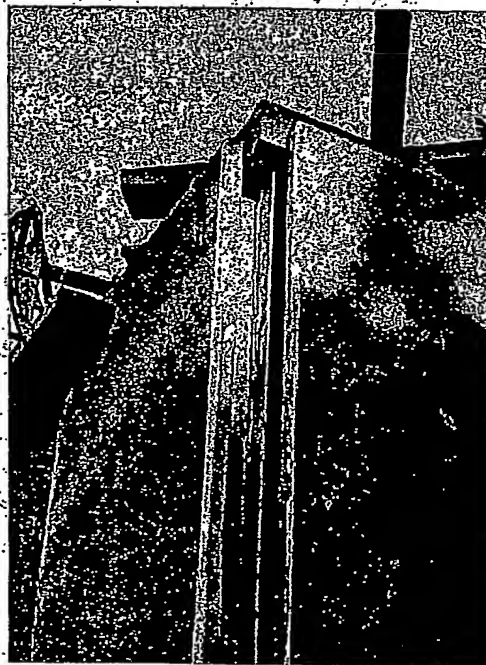
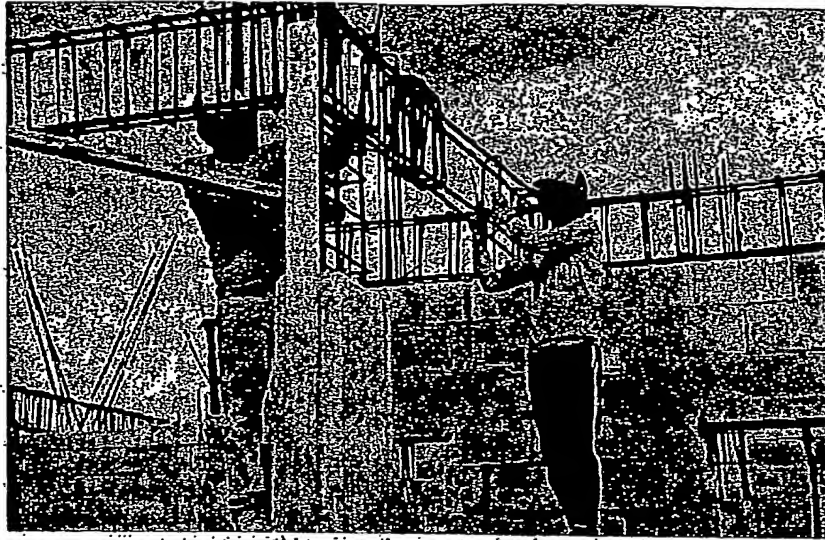
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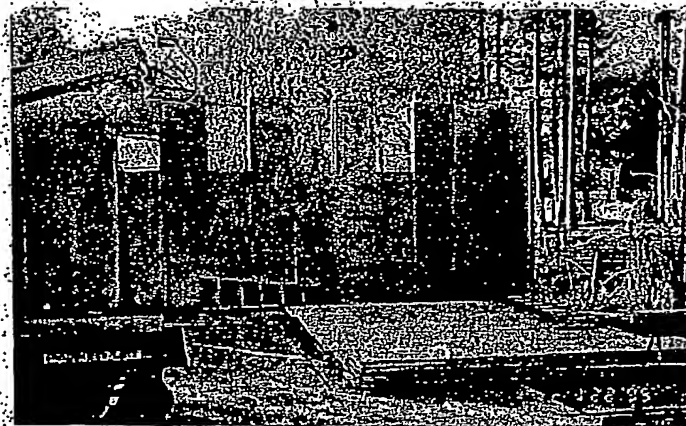
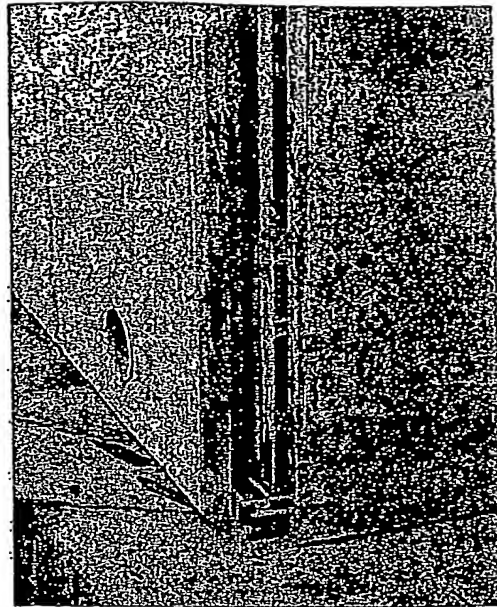
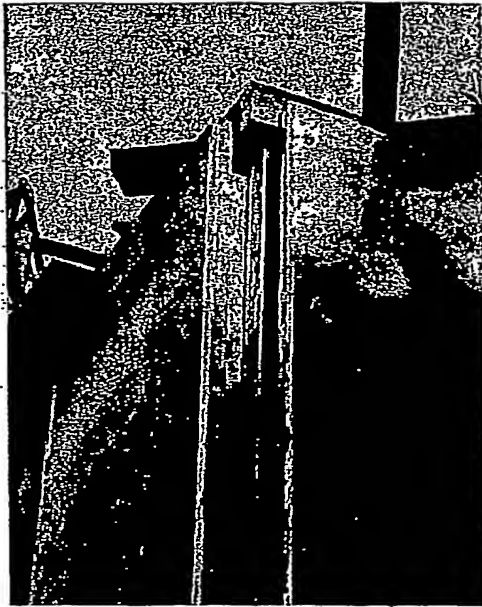
5. Shows panel construction in playhouse
6. Shows two-story panel construction with standard roof construction (not our preference).
7. Corner placement of panels
8. Wall construction for 800 square foot home
9. Window panel placement



12. Panel assembly of 11 foot panels for construction of two-story unit. These panels were concrete on both sides and were quite heavy. This indicates that the panel faces can be of any material.

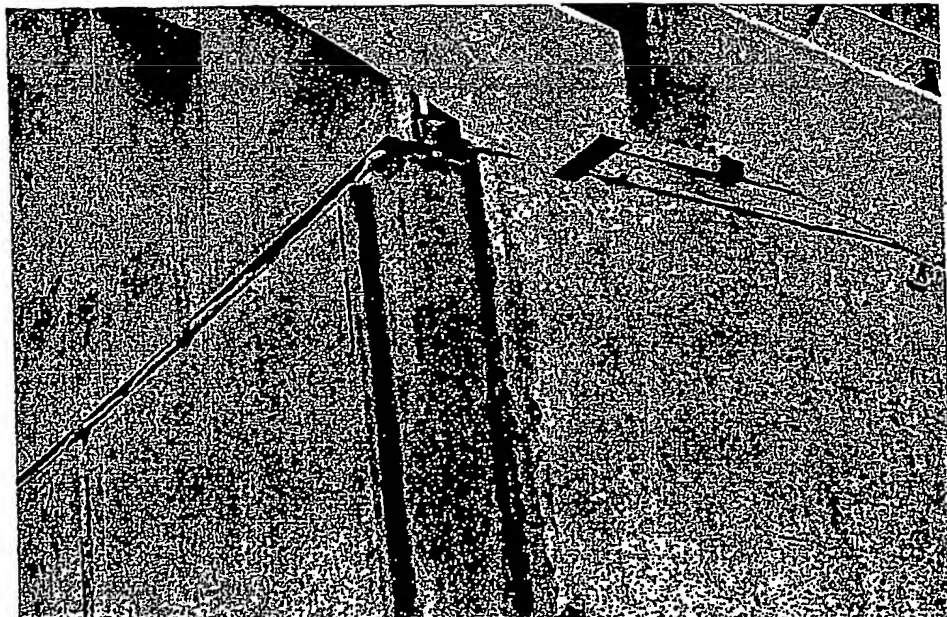
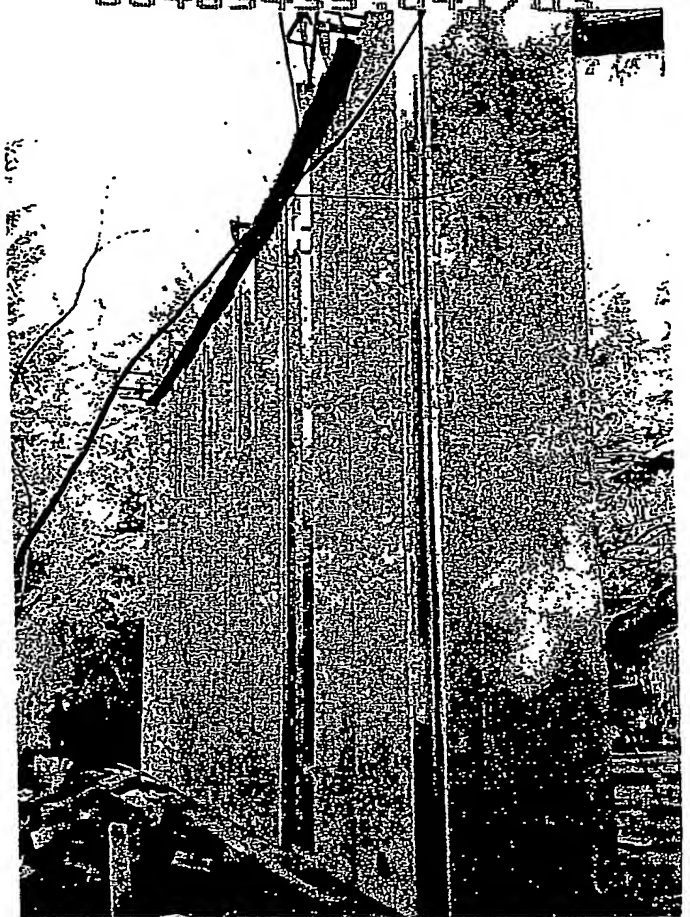


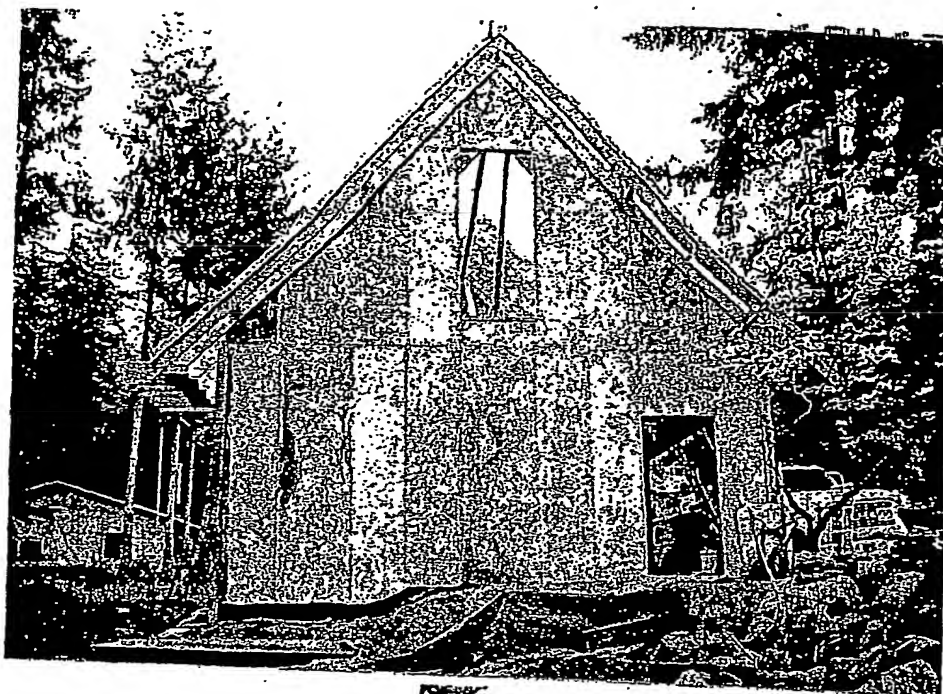
13. Standard offshore construction. Building is very time consuming, offers poor earthquake protection, and very low insulation value.



14. The corner of a *ReZist-It* home. In-situ concrete is the finished corner or it can be covered with a special snap plate and filled with insulation. Metal connections hold the corners in place.
15. The panel corner before finishing.
16. A close-up showing a hole for pipe insert and bottom plate.

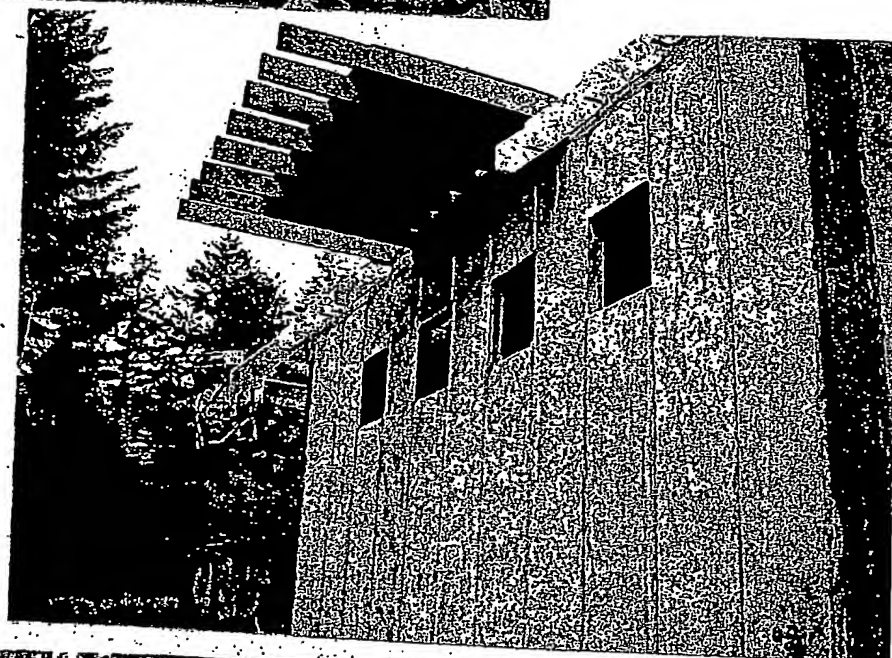
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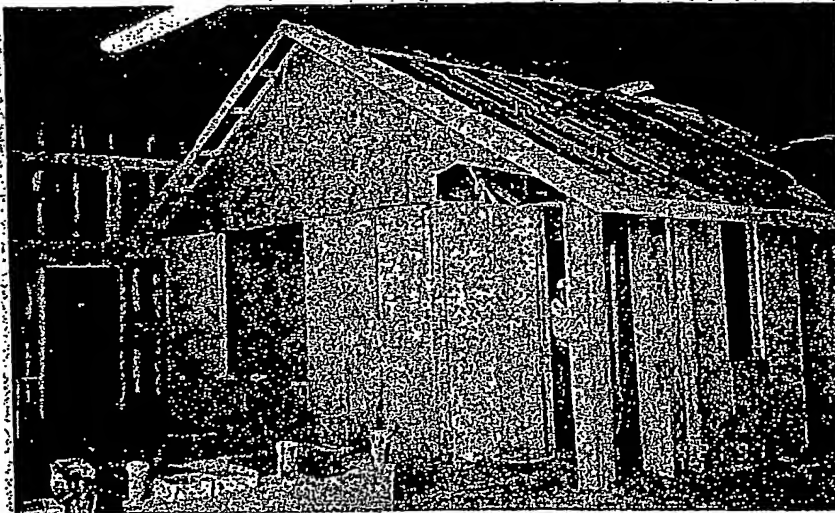
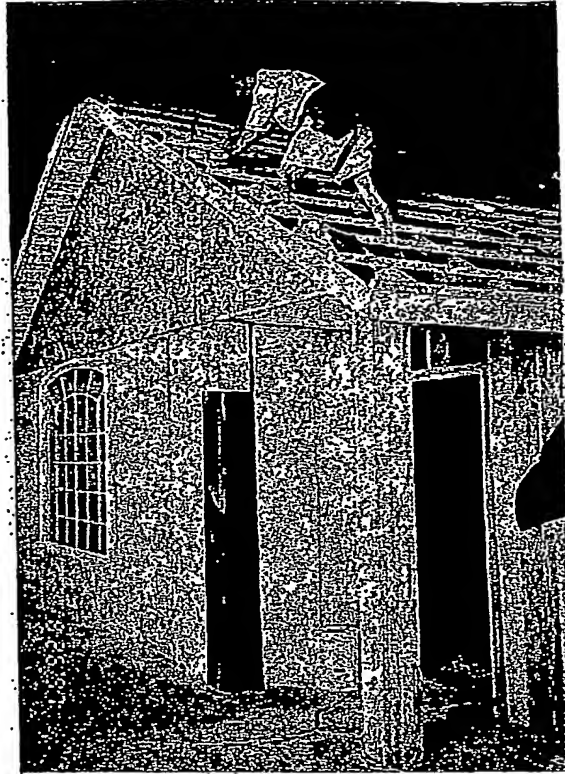


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1. Rear elevation - prototype
2. Side elevation with porch
3. Side and rear view
windows for light only



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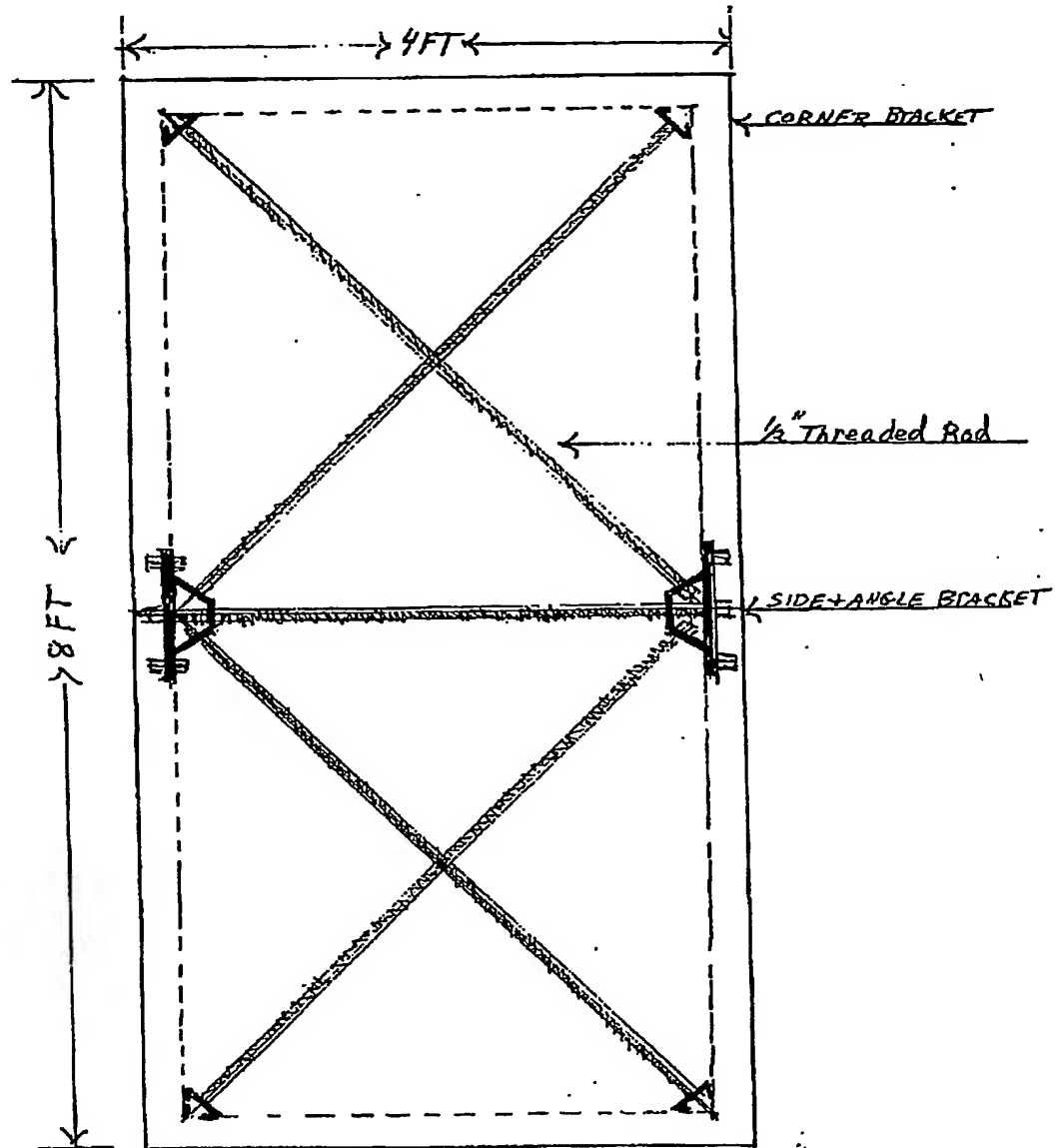


10. Roof framing with standard stick frame roof that we do not recommend. Metal or panel roof is more acceptable.
11. Panel assembly and roof construction. This was built before we were able to use panels on the roof. We now have a roof panel system that becomes an integral part of the system ensuring that the roof connections will act in sync with the wall system when under undue pressure from wind or earthquake.

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20. A canoe dock. Constructed of five 2' x 8' panels including the walkway. Sold as kit for under \$500. High profit item with very rapid assembly by owner.
21. This indicates the flexibility of the system. Items such as this could be sold through stores such as Home Depot.

4'x8' REZIST-IT SHEAR PANEL.

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ARCHITECTURAL CONCEPTS

1029-D SOLANO AVENUE ALBANY, CA 94706 USA Tel: 510-525-9630 Fax: 510-525-9653 E-mail: archcon @ earthlink.net

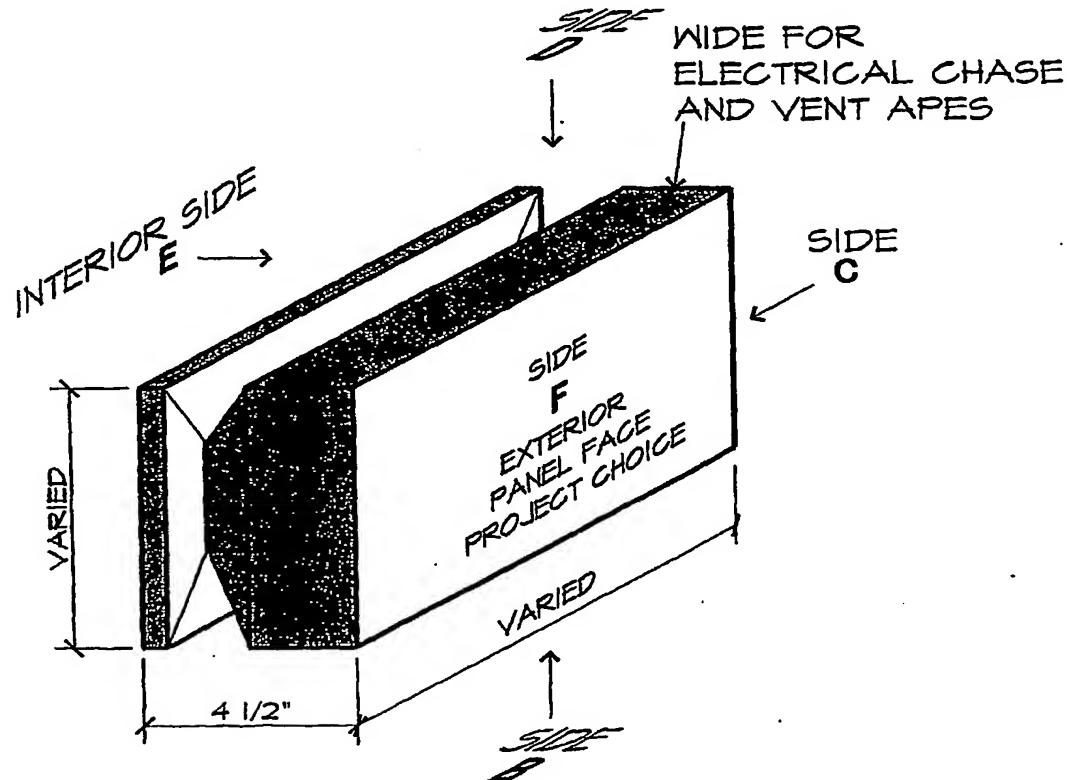
Architecture + Planning + Interior Design

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GLOPAC GLOBAL PACIFIC TECHNOLOGIES, LLC

20 VALLEY VIEW DRIVE ORINDA, CA 94563 USA Tel: 925-254-6619 Fax: 925-254-6624 E-mail: global-pacific.com

The *ReZist-It* System



ISOMETRIC VIEW

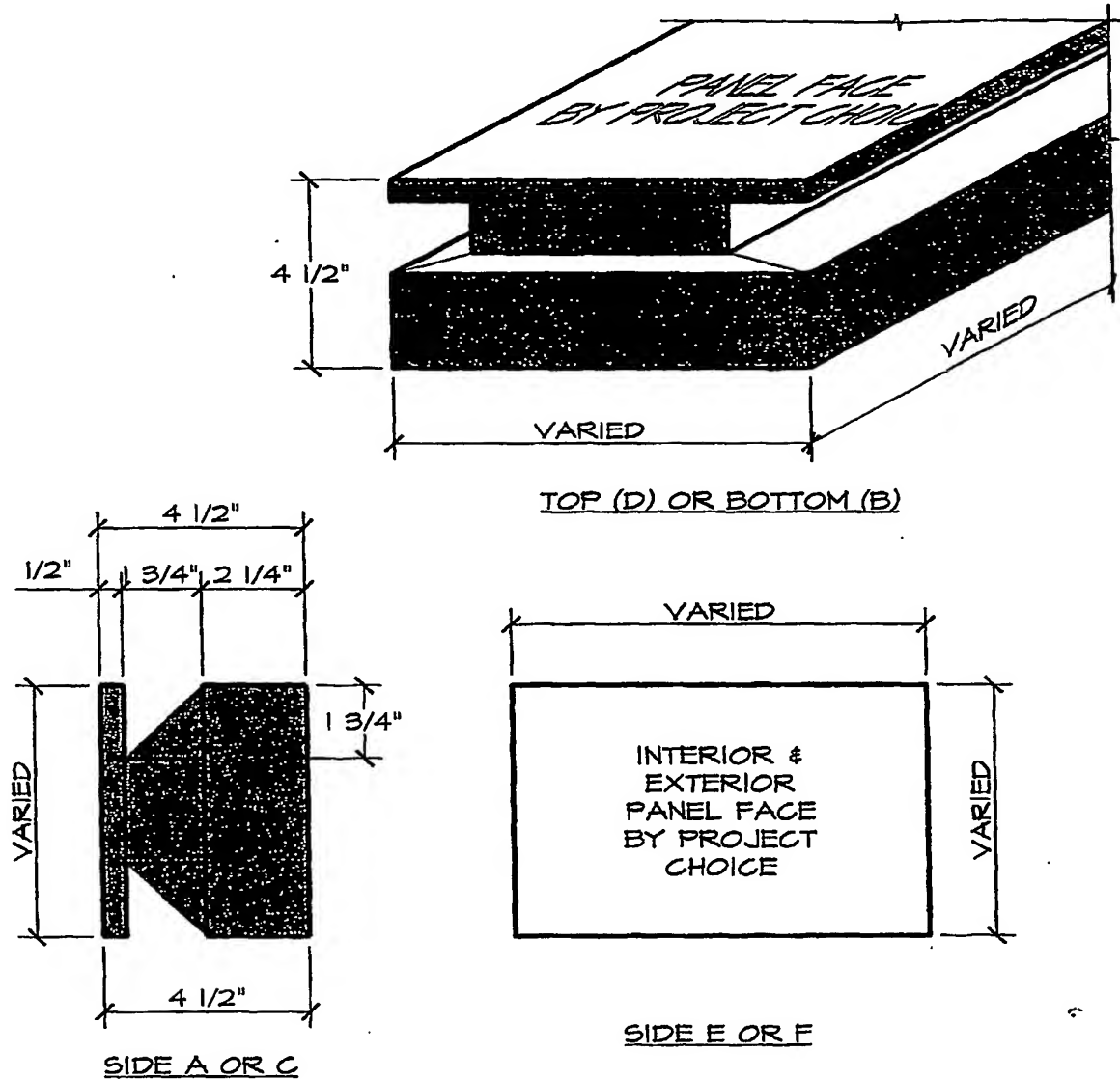
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DETAILS OF PANEL SHEET 1 of 9

ARCHITECTURAL CONCEPTS

Architecture + Planning + Interior Design

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DETAILS OF PANEL SHEET 2 of 9

ARCHITECTURAL CONCEPTS

Architecture + Planning + Interior Design

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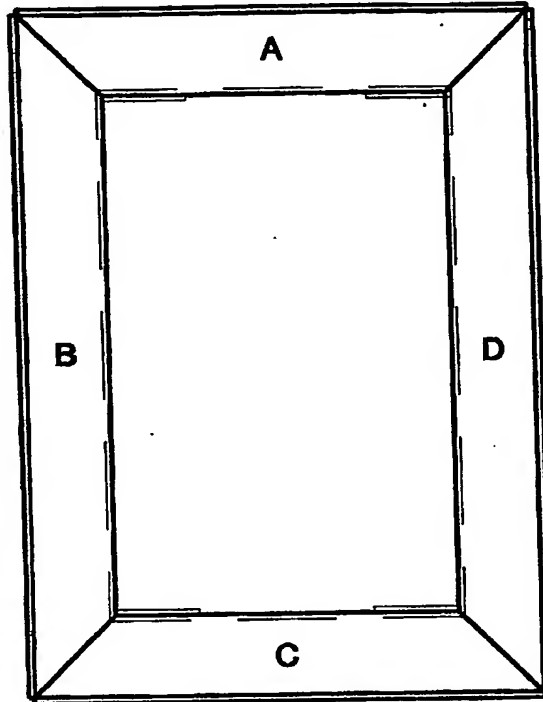
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GLOBAL PACIFIC
TECHNOLOGIES, LLC

The *ReZist-It* System

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FRAME PLAN VIEW
FOLDED METAL PIECE

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DETAILS OF PANEL SHEET 3 of 9

ARCHITECTURAL CONCEPTS

Architecture + Planning + Interior Design

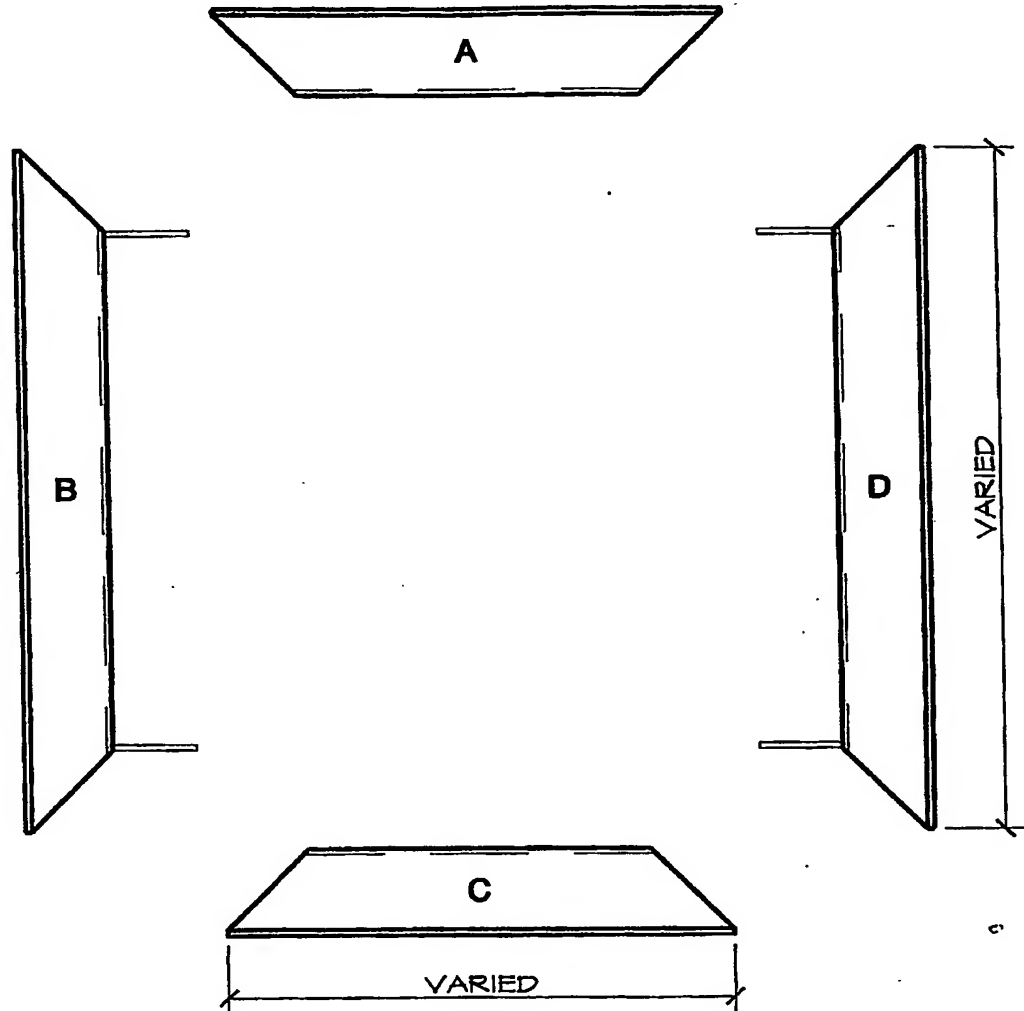
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The *ReZist-It* System



PLAN VIEW (SPEAD)
FOLDED METAL PIECE

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DETAILS OF PANEL SHEET 4 of 9

ARCHITECTURAL CONCEPTS

Architecture + Planning + Interior Design

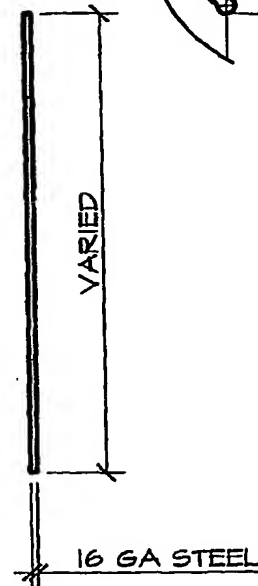
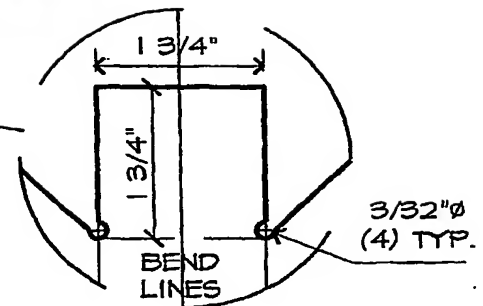
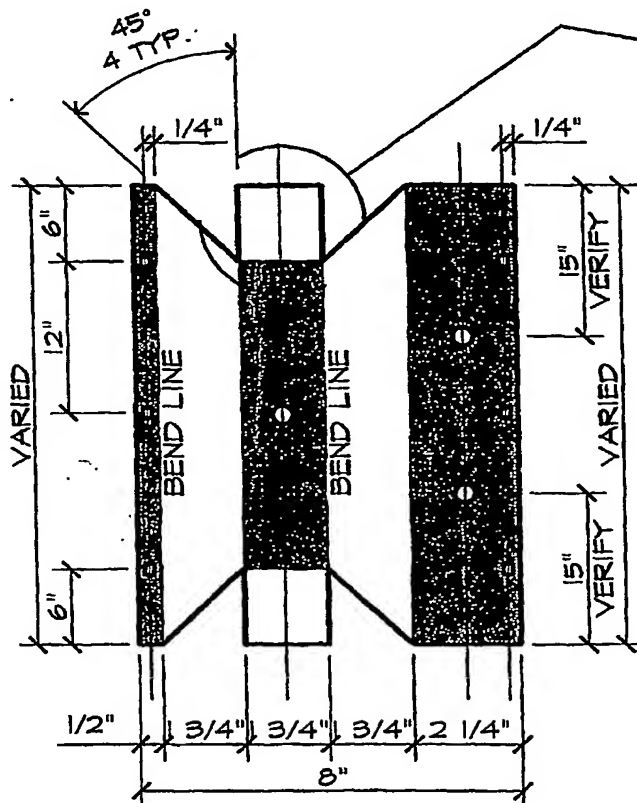
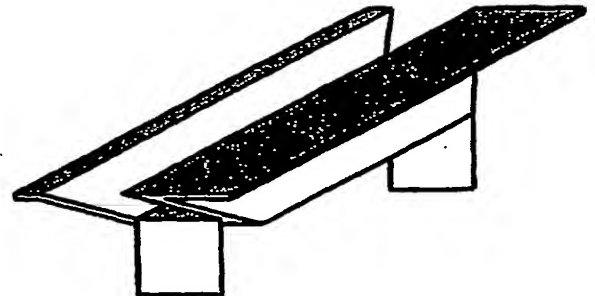
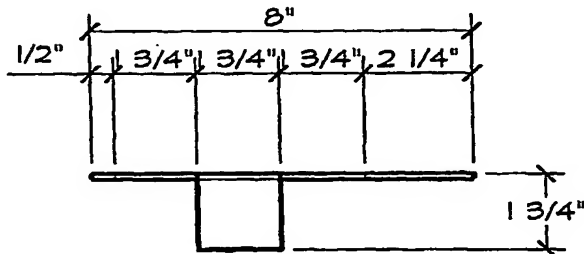
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The *ReZist-It* System



SIDE B AND D
UNFOLDED METAL
PIECE
WITHOUT TAB

1/2

DETAILS OF PANEL SHEET 5 of 9

ARCHITECTURAL CONCEPTS

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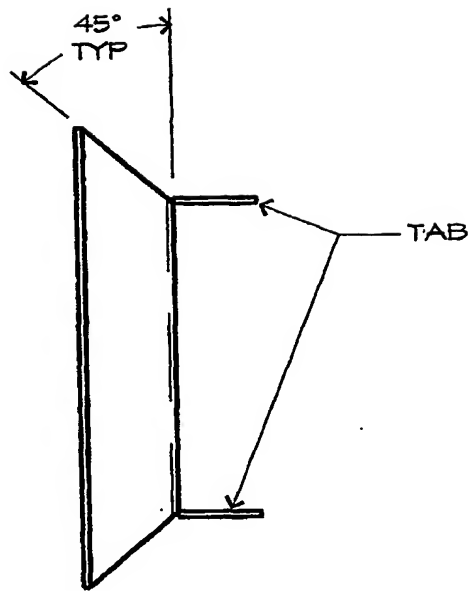
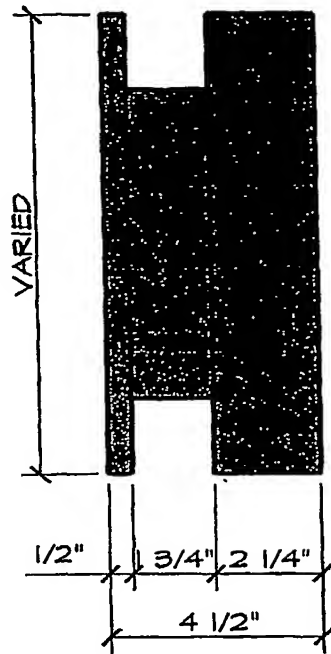
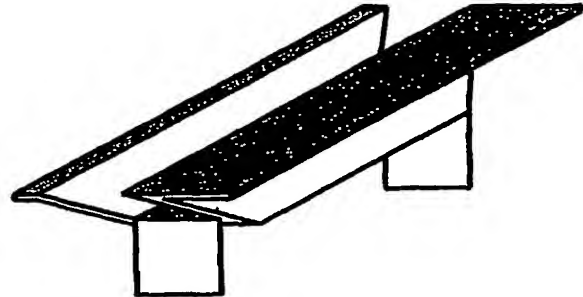
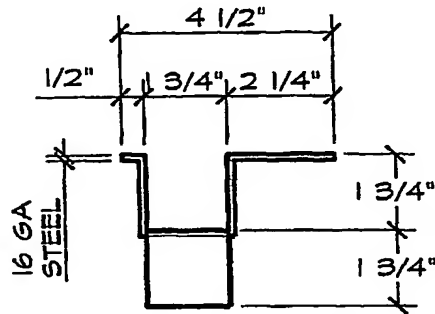
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SIDE B AND D
FOLDED METAL PIECE
WITHOUT TAB

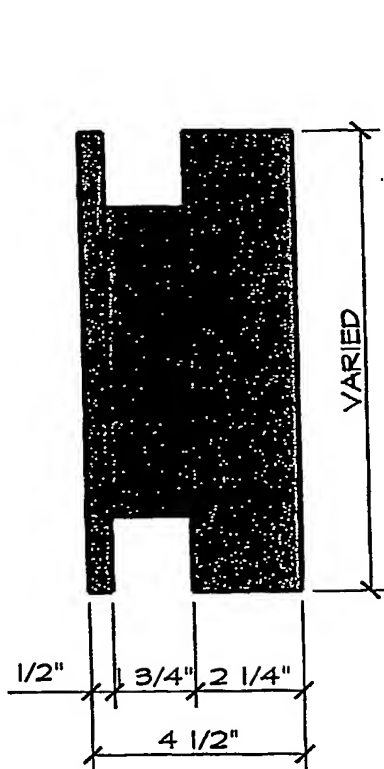
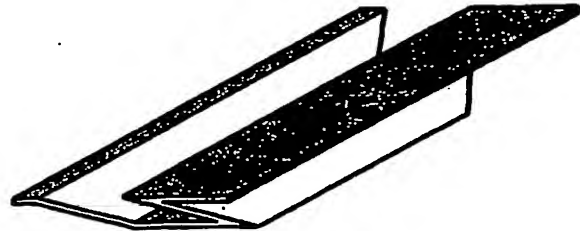
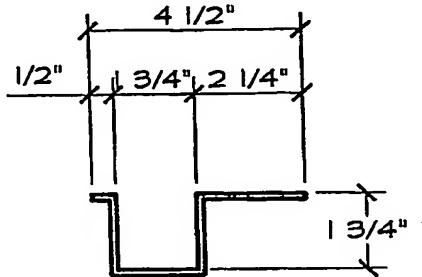
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DETAILS OF PANEL SHEET 6 of 9

ARCHITECTURAL CONCEPTS

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TOP A AND BOTTOM C
FOLDED METAL PIECE
WITH TAB

(44)

DETAILS OF PANEL SHEET 7 of 9

ARCHITECTURAL CONCEPTS

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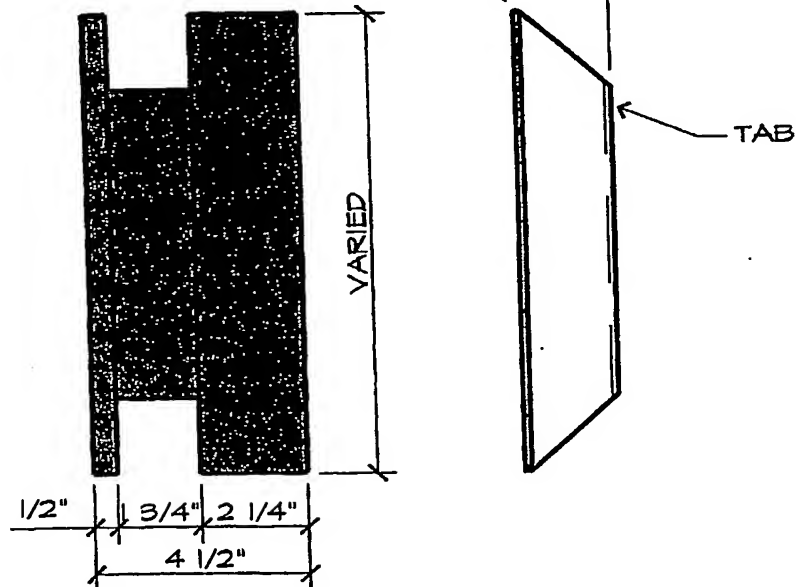
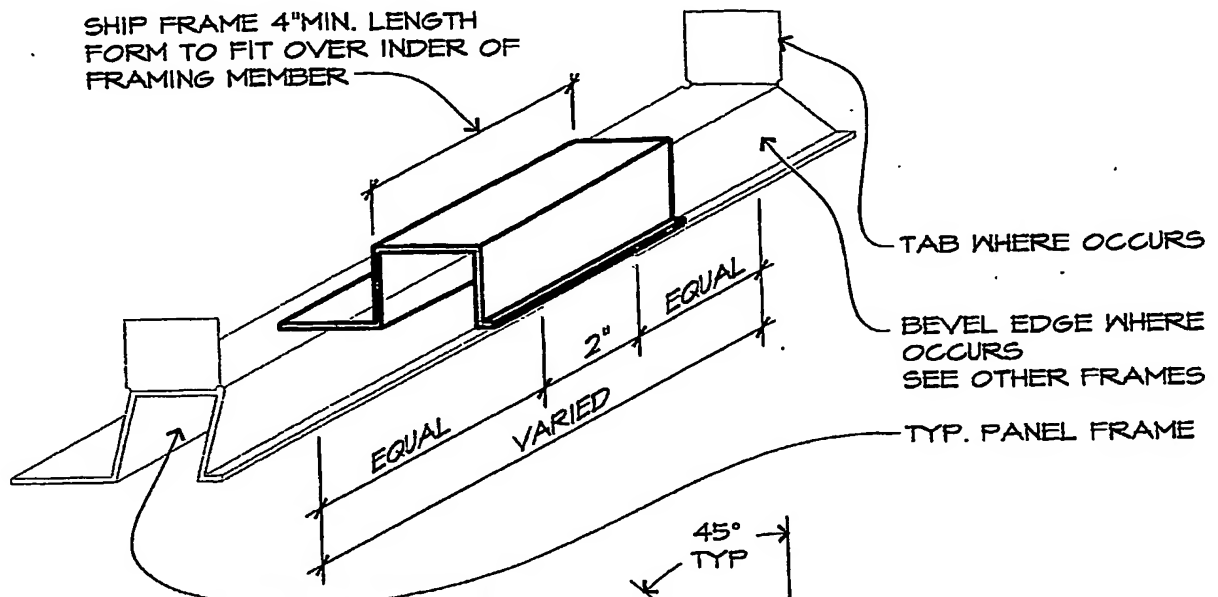
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The *ReZist-It* System



PANEL FRAME JOINT @ FILLER PANEL
TOP A AND BOTTOM C
FOLDED METAL PIECE
WITH TAB

45

DETAILS OF PANEL SHEET 8 of 9

ARCHITECTURAL CONCEPTS

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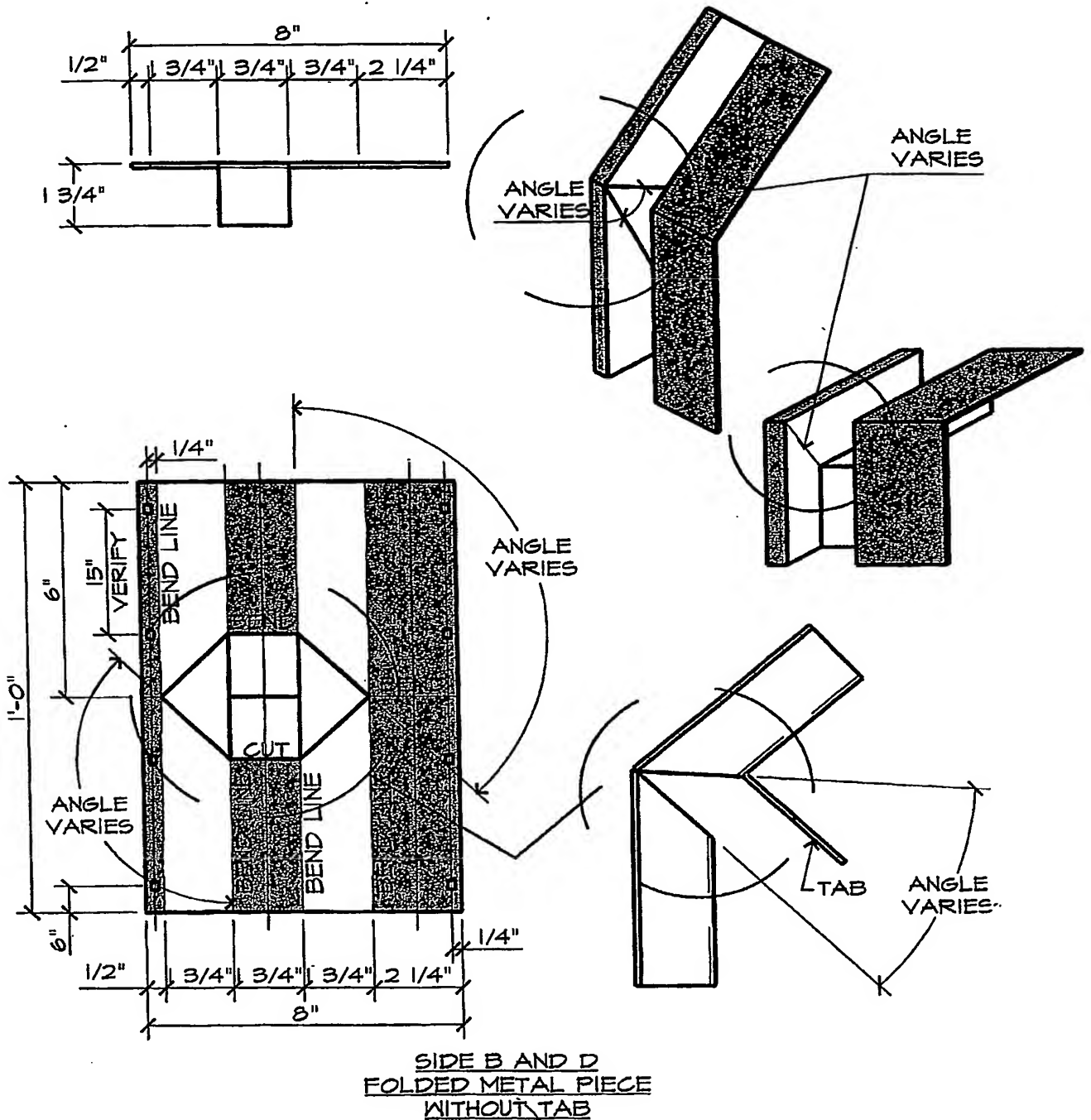
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The *ReZist-It* System



SIDE B AND D
FOLDED METAL PIECE
WITHOUT TAB

(46)

DETAILS OF PANEL SHEET 9 of 9

ARCHITECTURAL CONCEPTS

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What is the ReZist-It® Building System?

The **ReZist-It® Building System** is comprised of composite concrete structural panels composed of cement board or of cementitious slurry known as the **ReZist-It® Formulation**. This proprietary compound is set or poured into a G-60 galvanized frame encapsulating a lightweight core of insulating urethane.

The panels cure and are ready for use in one hour or less! GloPac's **ReZist-It®** panel forms an extremely strong building component, used in GloPac's building system. Along with innovative foundation and roofing connection systems, the **ReZist-It® Building System** can be utilized in a wide variety of construction projects.

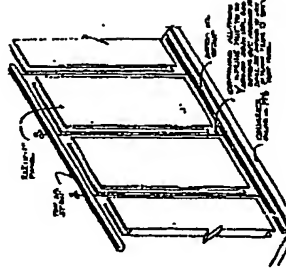
GloPac's Building Products.

GloPac's **ReZist-It® Building Systems** include structural shell building kits, 4-hour firewall panels for specific applications, a proprietary concrete composite fast-set formulation, freeway soundwall panel systems, as well as portable emergency housing for natural disaster relief.

The company provides architectural, engineering and manufacturing services from design and project management to on-site (in-country) manufacturing; GloPac can easily meet the special needs of distributors and independent builder/developers.

The typical panel weighs considerably less (45 to 180 lbs.) than conventional concrete panels of similar size. GloPac's typical panel is 4-1/2 inches thick by 8 feet in height and 2 feet wide surrounded by pre-formed structural steel. The center portion of the sandwich panel is class 1 fire rated urethane foam, three and a half inches thick, giving the panel an R-30 insulation factor.

When two panels are placed together, two 16 gauge studs surround a concrete column with a threaded steel post-tension rod anchoring the roof to the foundation, which provides exceptional structural integrity.



ReZist-It® Building Panel Features

- Insulated concrete composite construction (R-30)
- Extremely rapid cure time (30 minutes/panel)
- Simple, Fast Construction and Assembly
- Panels rated to 155 MPH wind load
- Earthquake resistant- Zone IV
- Fire-resistant/Noncombustible
- Moisture/Mildew & Termite resistant
- Energy efficient & Environmentally safe
- High sound absorption
- Cost effective, less construction waste
- Panels can span up to 14 feet
- No lifting equipment necessary
- On-site or mobile manufacturing available
- Limited noise during construction

GloPac... The Company

GloPac is a premier developer of building systems using proprietary composite concrete structural panels and components that provide builders with low cost, rapid-build methods and systems for the construction of a wide variety of residential, commercial and industrial buildings on a worldwide basis.

Through a balanced combination of creative, disciplined management, high quality products and services, GloPac has created a new and profitable niche in the worldwide construction marketplace.

Through licensed distributors and manufacturers, the company is providing new technology and new opportunities to the building industry.



A GloPac licensee can have **ReZist-It®** panel production up and running in a very short time... and for a modest investment. The company has pulled together a comprehensive, low-cost manufacturing plant that can be working, on any site, within 12 to 16 weeks. Skilled personnel are not required to run the facility. GloPac ships the **ReZist-It® Formulation** to the site and the licensee blends our proprietary liquid mix to the powder. GloPac provides complete consulting services to assure the licensee's investment pays off rapidly. Pre-formed metal will be supplied by GloPac for quality consistency.

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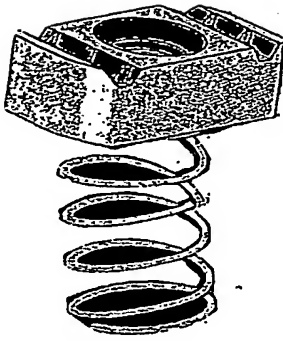


FIG. 1

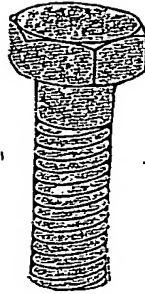


FIG. 2

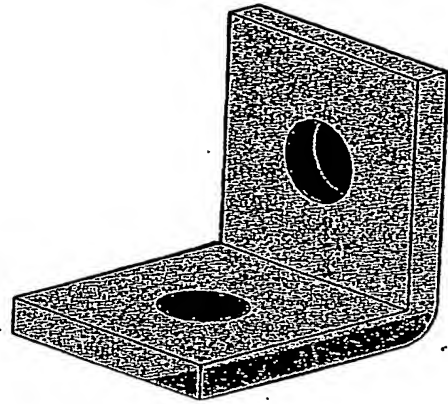


FIG. 3



FIG. 4

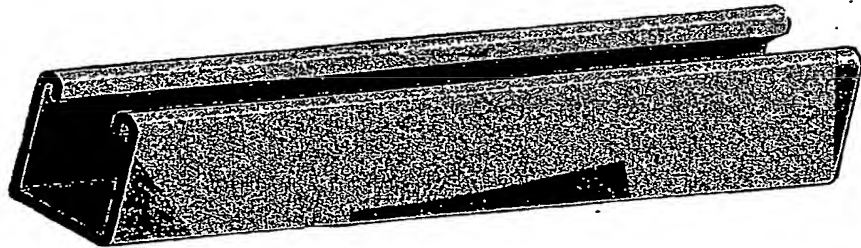


FIG. 5

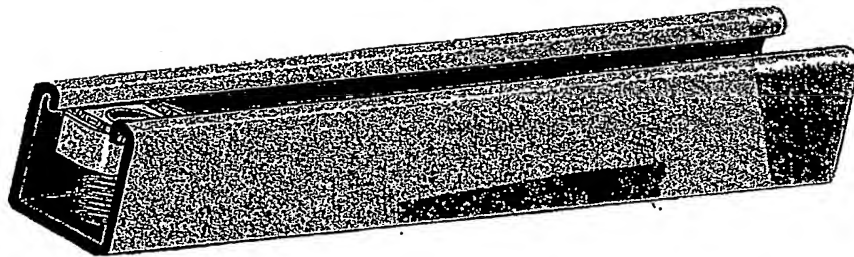


FIG. 6

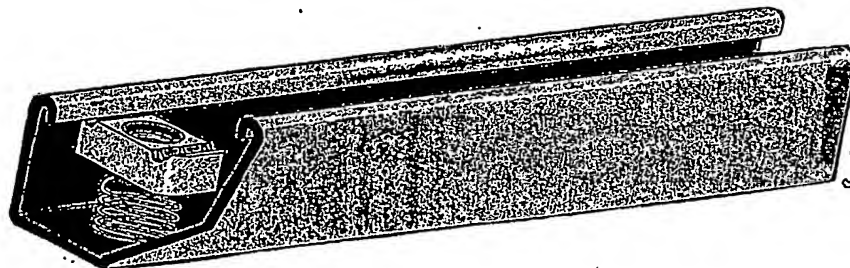


FIG. 7

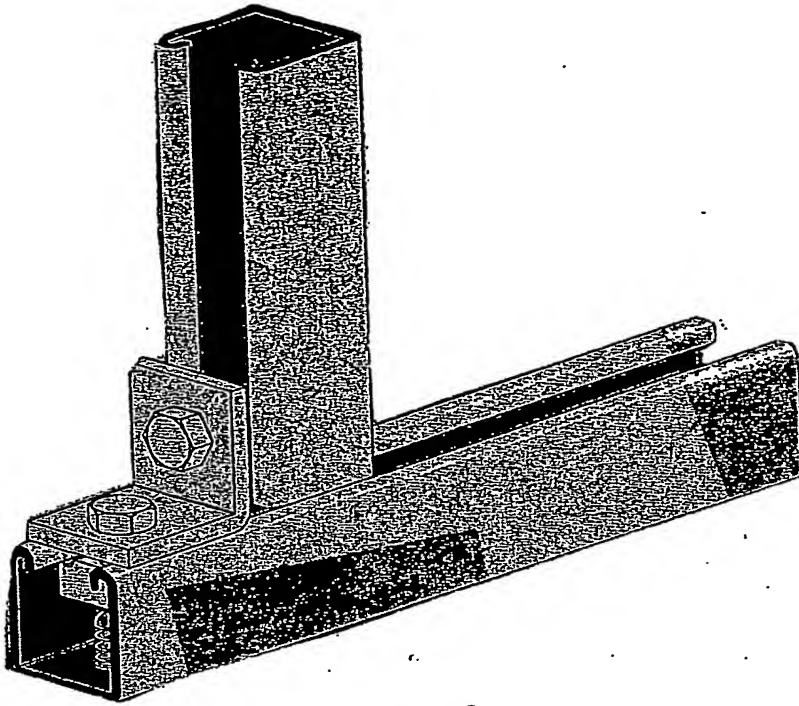


FIG. 8

(54)

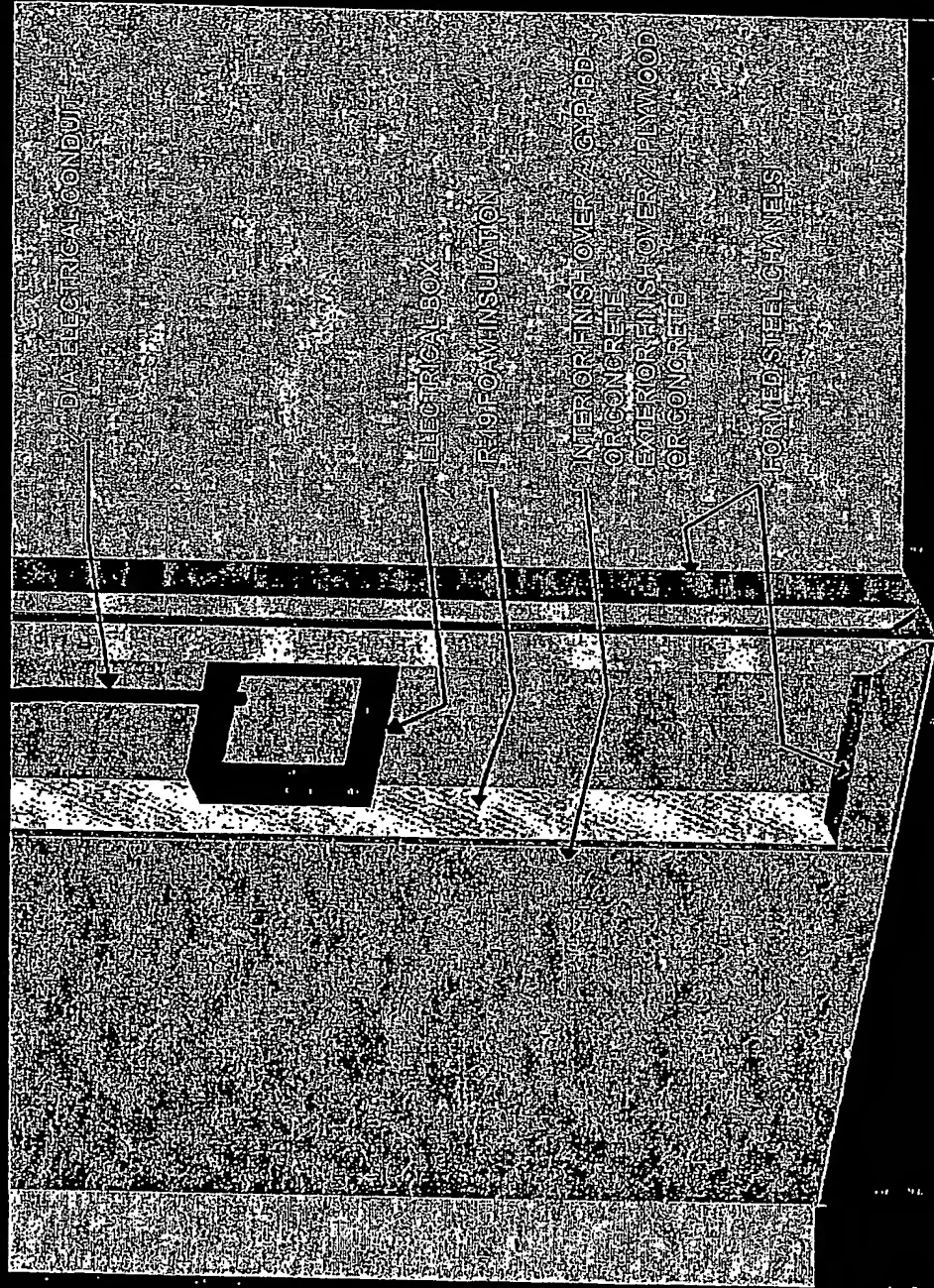
TYPICAL 4 1/2" THICK ELECTRICAL PANEL



25

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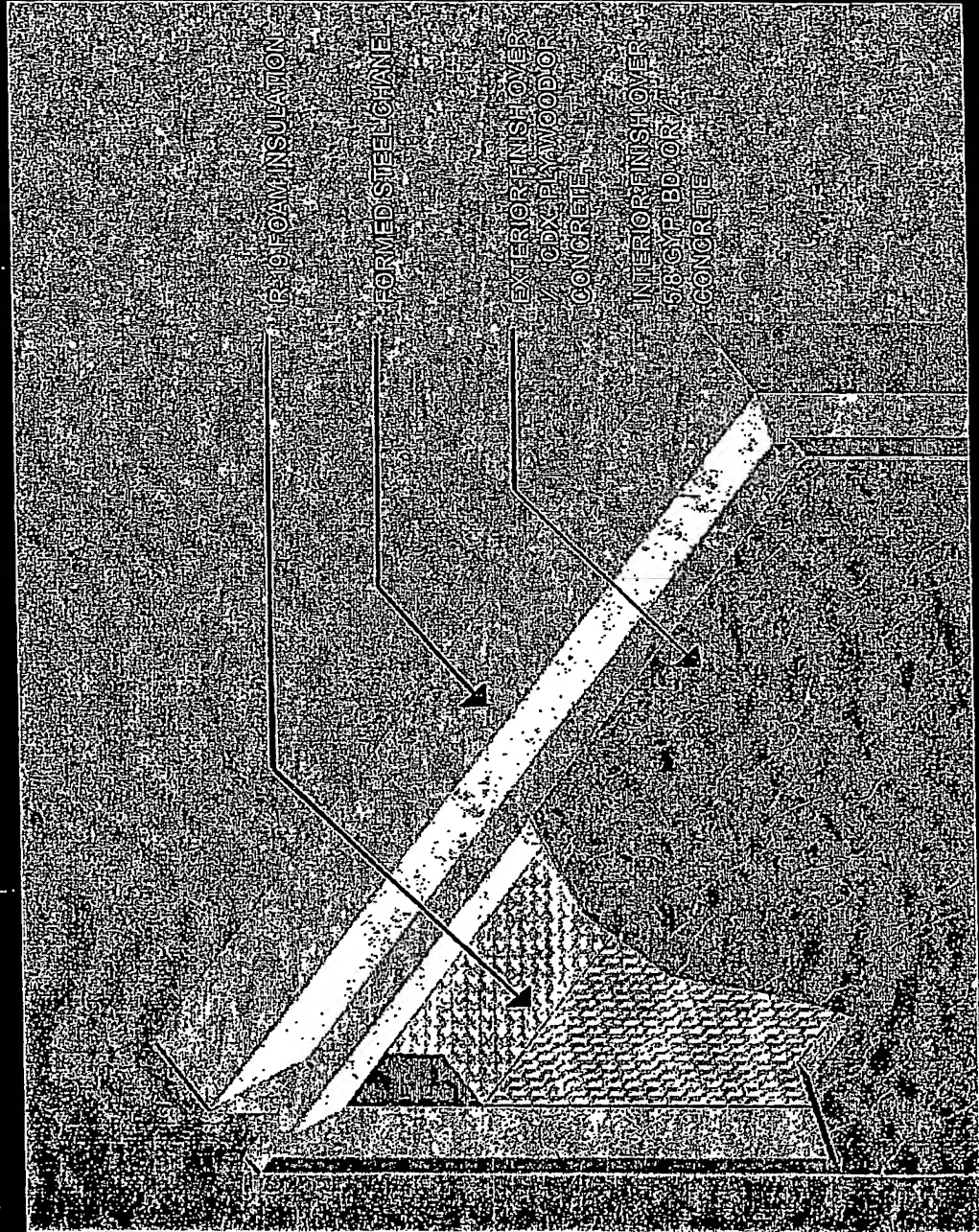
PANEL WITH ELECTRICAL BOX



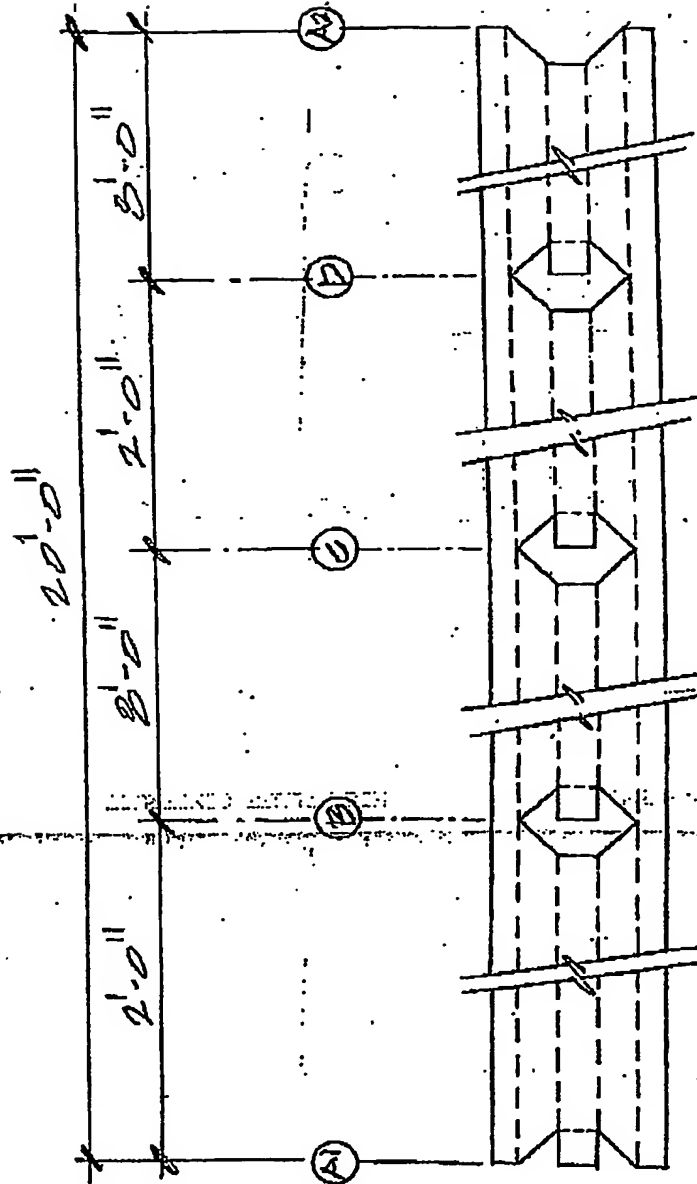
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NO. 140-54M9409

TYPICAL 41 1/2" PANEL

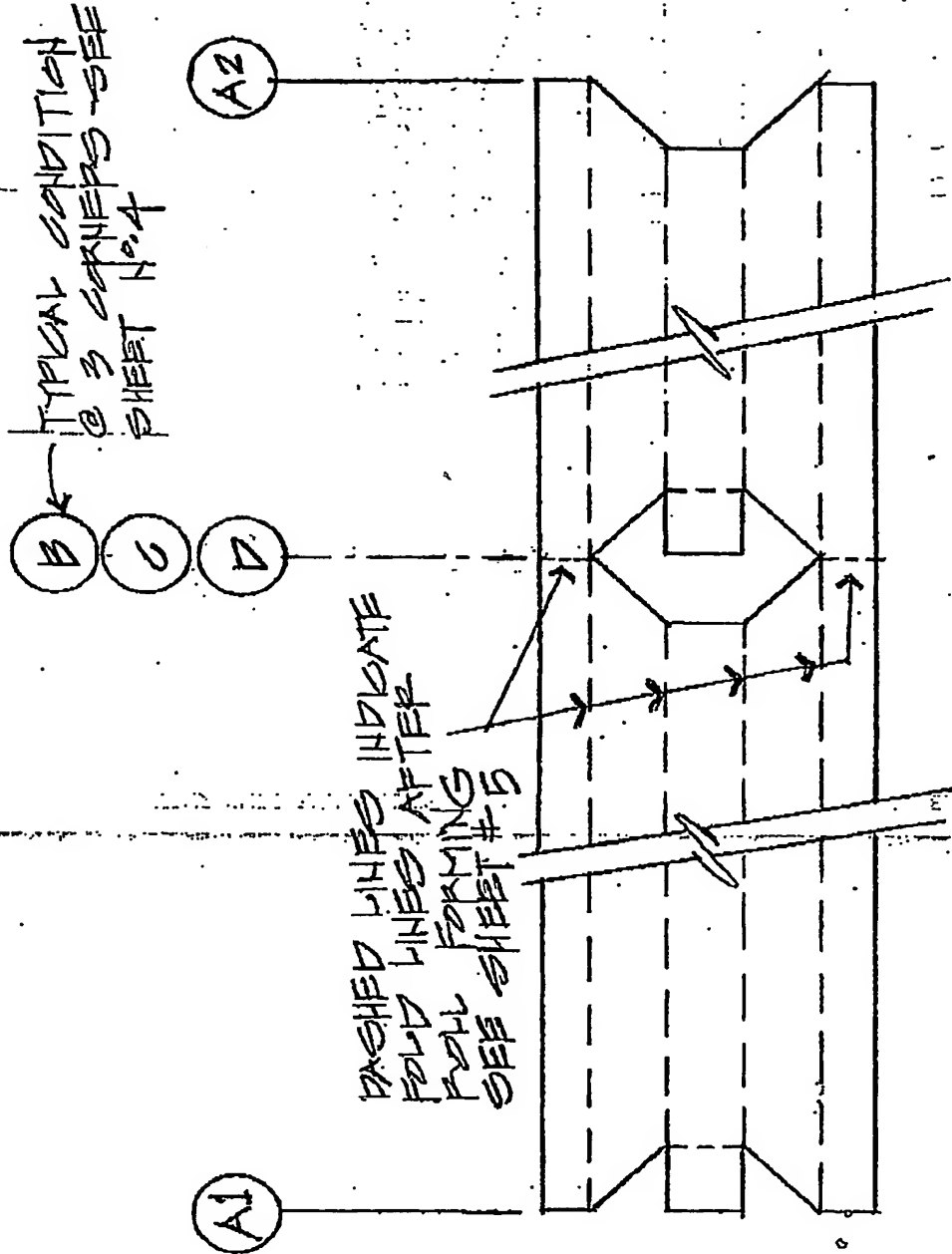


(25)



Pre-Rolled & Pre-Bend Plan One Panel Frame

Scale: 1 1/2" = 1'-0"



Pre-Rolled Plan

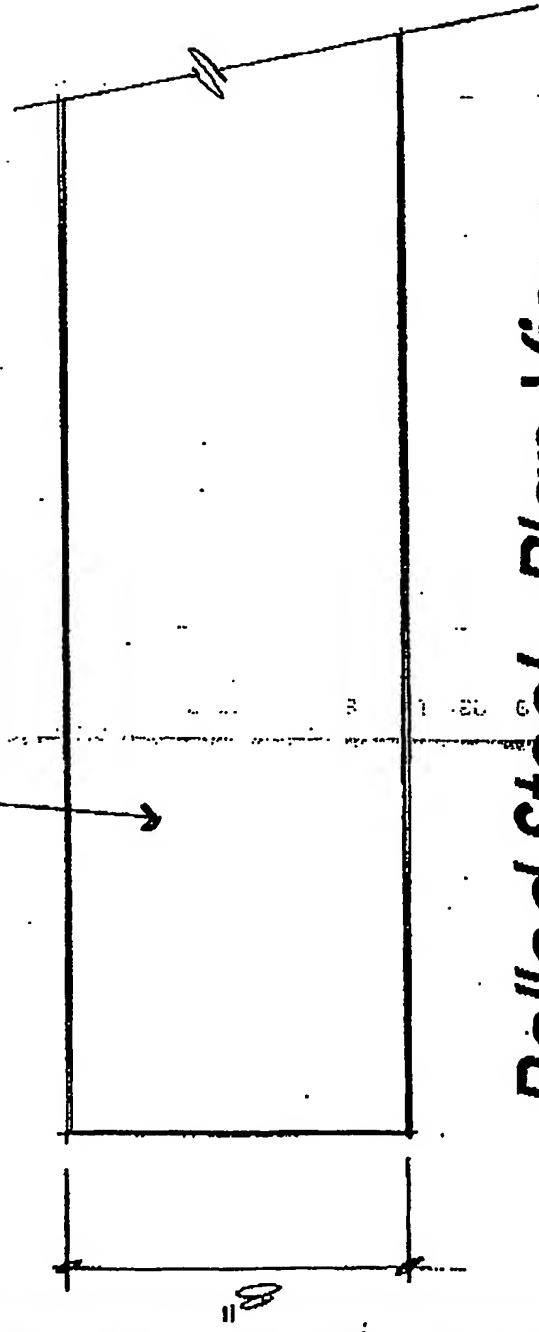
Scale: 3' = 1'-0"

53

15

1

4 GA STEEL-SPLIT TO 2" ROLLS-
BENNERED IN ROLLED FORM



Rolled Steel - Plan View
Scale: 3' = 1'-0"

Punch Out Plan

Scale: 3' = 1'-0"

TYPICAL CONDITION
@ 3 CORNERS - SEE
SHEET # 4

B
1
D

A2

A1

DASHED LINE
INDICATES FOLD

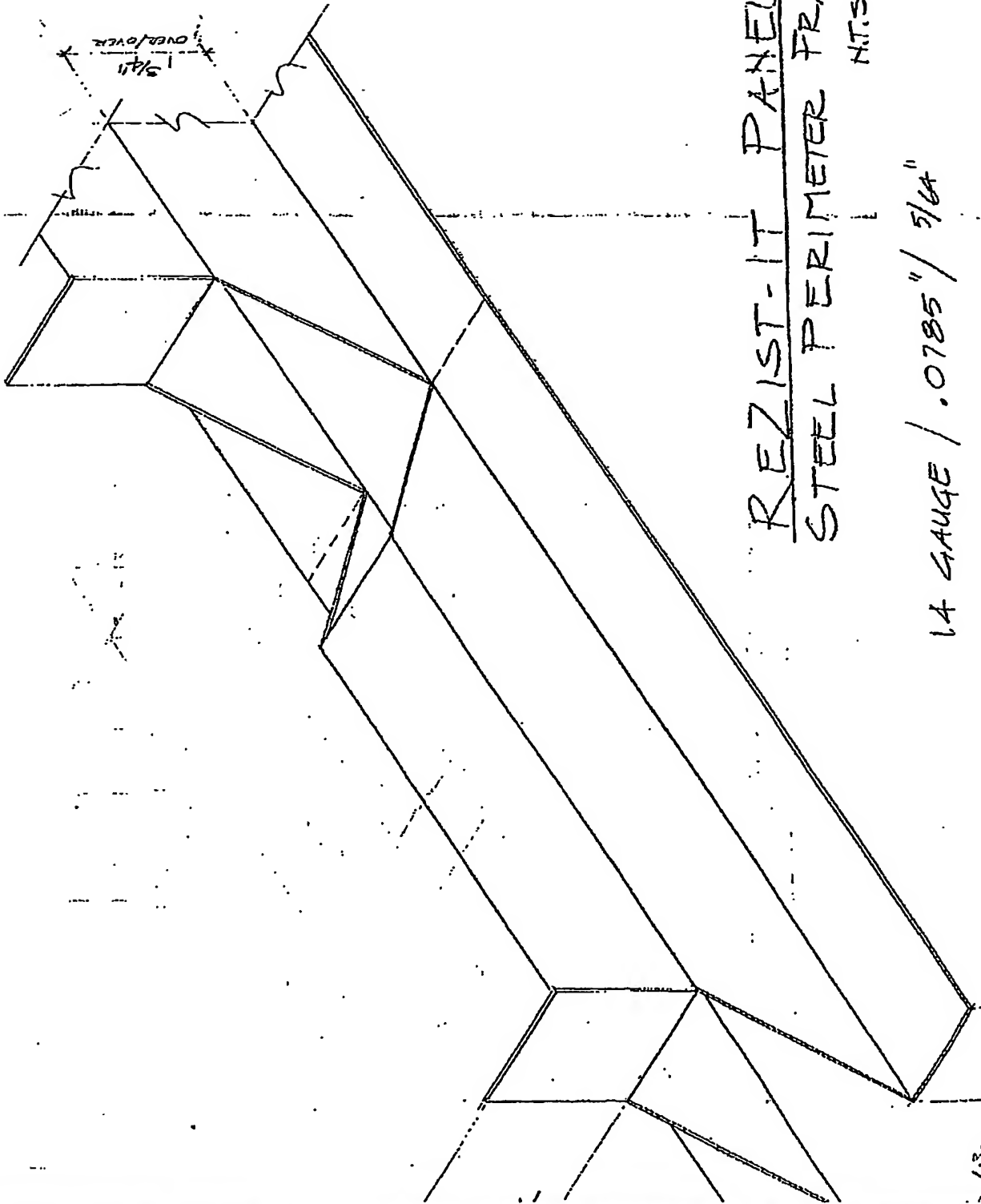
55
3/16"
3/16"
3/16"
3/16"
3/16"

3/16"
3/16"
3/16"
3/16"
3/16"

3/16"
3/16"
3/16"
3/16"

DIE CUT PUNCH OUT

95



RESIST-IT PANEL
STEEL PERIMETER FRAME

N.T.S.

14 GAUGE / .0785" / $5/16$ "

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